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Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XV.

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No. 1

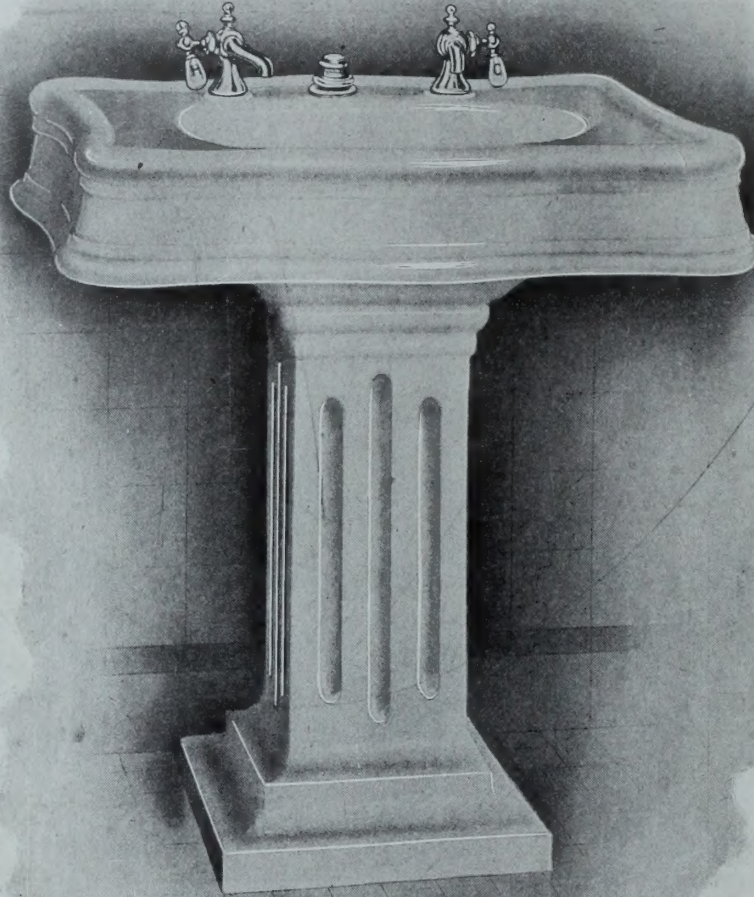
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TINKER TOM'S TALKS.

No. 292

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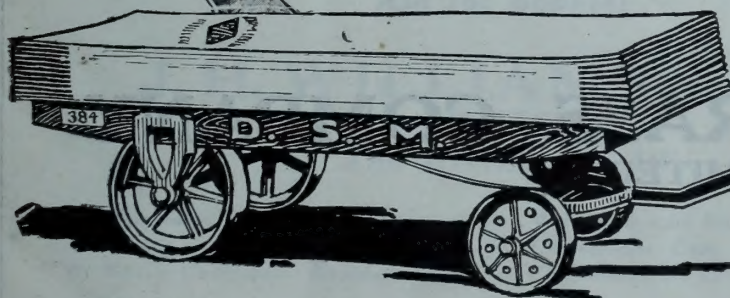
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6. The contractor who operates a modern store, equipped to give service equal to that offered by other lines, is bound to profit accordingly.
7. The chain of discounts from manufacturer, to jobber, to contractor, must be so adjusted that each gets paid fairly for the function performed.
8. Any action taken by one division of the industry, which affects another, is seldom satisfactory unless each division affected is represented in the consideration ahead of such action.
9. The public should be enlightened concerning domestic sanitary engineering, heating and ventilation, the value of these services and the problems involved.
10. Quality—of material, workmanship, and service—will bring lasting approval and increased profits in its train, as irresistibly in this industry as it does in every other.
11. Every contractor, jobber and manufacturer should belong to and attend the meetings of the association representing their respective interests, for only through associated bodies can the greatest efficiency be created in any industry.
12. Sanitary legislation should be modified so that it will not destroy the prestige obtained by the firm of long business experience and place them on a par with the irresponsible.

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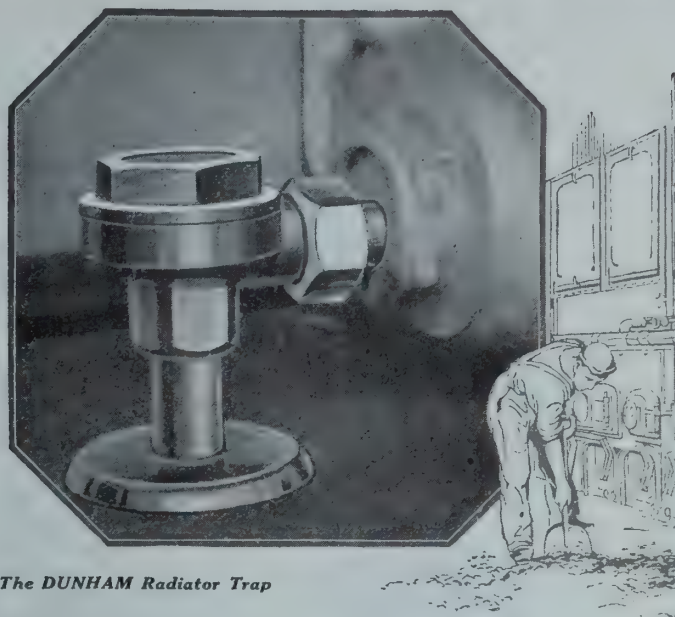
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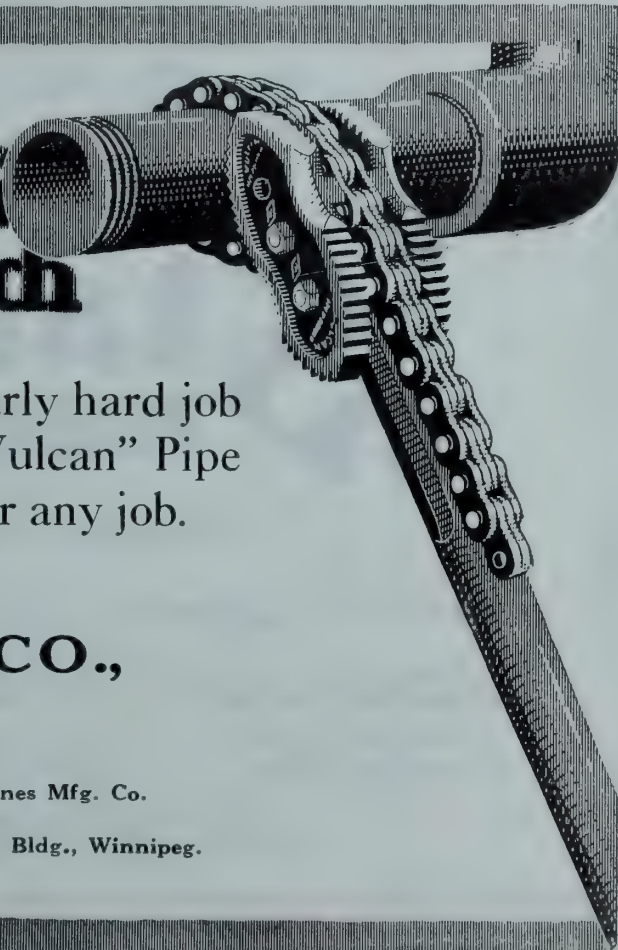
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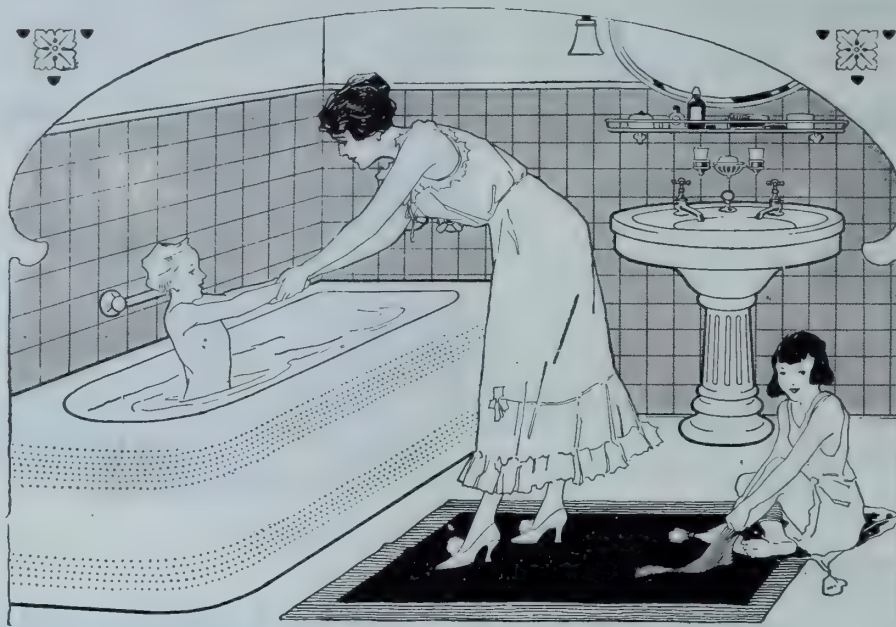
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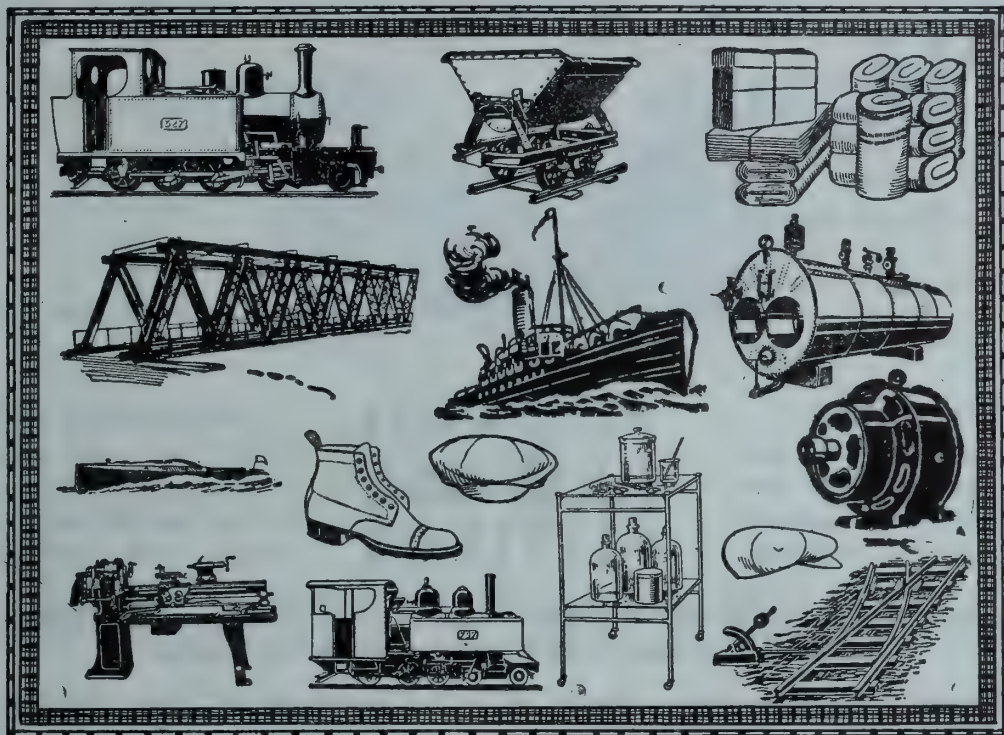
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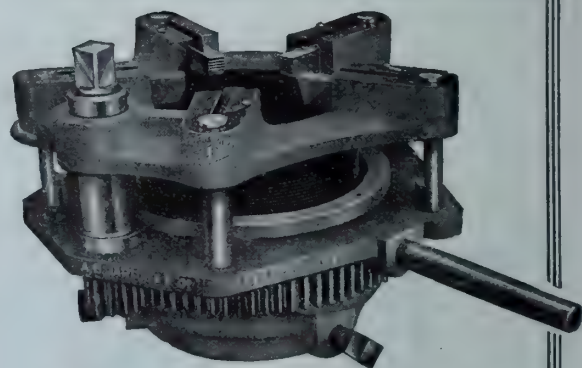
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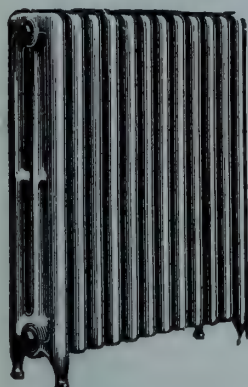
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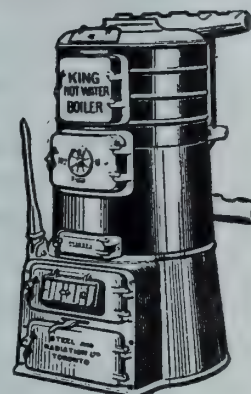
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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CONTENTS

Plumbing Supplies Outlook For 1921.....	13
Investigate Charge of Collusion.....	14
Montreal Master Plumbers in Convention.....	15
Sanitary Appeal Sells Water Systems.....	17
Editorial Comment.....	18
Sewage Disposal For Small Communities.....	19
Questions and Answers—New Plumbing Goods.....	20
Better Bookkeeping For 1921.....	21
News From Here and There.....	23
Tenders, Contracts, Etc.....	26
How Merchants Have Improved Collections.....	28
New Canadian Patents.....	29
Current Market Quotations.....	30-36

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TORONTO, JANUARY 1, 1921

No. 1

Plumbing Supplies Outlook for 1921

Pendulum Will Swing Forward When Public Confidence in Prices Is Established—Big Opportunity in Construction Industry
—Cost Plus Percentage Contract Does Not Stimulate Confidence
—Copper Shows Stronger Tendency

A NUMBER of opinions dealing with conditions in the trade and with particular regard to the business outlook in plumbing and heating supplies have been secured by Sanitary Engineer to give the trade some idea of what manufacturers are planning for during 1921.

Expressing hopefulness for a good year, A. J. Dickey, general manager C. A. Dunham Co., Ltd., manufacturers of heating system specialties, Toronto, gives it as his opinion that public sentiment is the greatest of all sources in determining good or bad conditions, whether it be socially or industrially. He speaks of it as the force that makes the pendulum of business move first one way, then the other.

"Right now," says Mr. Dickey, "public opinion (distrust) is swaying the pendulum backwards, and the reaction caused by many unhealthy conditions during and since the war. How much further the pendulum has to swing no one knows.

"This much is sure, the pendulum will not swing forward again until public opinion (distrust, mainly centred in unstable prices) has changed to public confidence in prices. This cannot come about until every man in business has made a determined effort to improve efficiency, whatever the schedule of prices may be or on whatever level.

Lack of Confidence From Inefficient Production

"The present period of lack of public confidence has resulted from lamentably inefficient production. We have evidence of this in the construction industries possibly to a less extent than in many other lines, but nevertheless real.

"The year 1921 is glistening with opportunities for business in the construction industries. Projects are badly needed. What is now needed to turn these into real projects, *under way*, is confidence in prices. Prices will be higher than the old schedule but they must represent *full values*, on the basis of *efficient production*."

High building costs resulted from lost time, wasted time, and in many cases paying a schedule

of wages that was not earned. This was evident in the erection of buildings as well as in the making of many of the products entering into buildings. When the public feel that they are getting full value for the money invested in new buildings, the industry will hum.

Cost Plus Basis Doesn't Stimulate Confidence

The cost plus percentage plan of contract work is not one that will stimulate this confidence in spite of the claims made that with declining prices the owner would be ahead. The owner is skeptical of the inefficient handling of his work. A straight contract price that secures and gives reward for efficient work is the basis on which public confidence will be awakened in building construction. Whether this comes with 1921, remains to be seen.

Next Year Will be Active

Stating that daily reports received from various sections of the country indicate that next year will be very active in such lines as water, gas and plumbing brass goods, castings and forgings, an official of H. Mueller Mfg. Co., Ltd., Sarnia, Ont., states as follows:—

"As we all know, there is a very great scarcity of houses at the present time, and according to Babson's reports, as soon as spring opens up there will be a great rush to build houses. This will mean, of course, considerable stimulation in lines of business in reference to building, plumbing and other necessities in that regard. Large numbers of architects are quoted as saying that 1921 will see the greatest amount of building that we have ever experienced.

Copper Shows Stronger Tendency

"Copper is quoted at a price considerably less than it has been for years, but at the time of writing shows evidence of renewed strength. The present price is lower than is justified by the cost of production, and it is believed when buyers come into the market with preparations for a good season that next year will see higher prices in copper.

Labor More Efficient

"Labor is becoming considerably more efficient

than has been the case in the past. Men are anxious to turn out as much work as possible to hold their jobs, and we find them in a better frame of mind and not so independent as has been the case in the past. Every dollar spent for wages brings in more than a dollar spent in 1918 and 1919. Wages, including freight rates, will offset to some extent the lower cost as the result of this more efficient labor or greater production on the part of employers.

"Buyers could assure themselves of prompt shipment of orders if they would only place them now, but unfortunately the tendency seems to be to postpone ordering until the last possible moment because, in view of other reductions in certain lines, they feel sure that plumbing goods will drop as well.

"We have tried to influence customers to take advantage of the slump at the present time to place orders for delivery January 1st, or after, but it is not having as great an effect as we would wish. As one writer has put it, all buyers are working along the same lines as the hunger strikers, that is, refusing to buy until prices come down, but in view of the fact that when prices did go up the rise was gradual, so also in this case we look for drops to be gradual.

"All manufacturers in our line are exceedingly optimistic for next year, and look for a flood of orders starting about March or April."

"During the latter part of this year and in fact all through this year, intending builders have held back, hoping for more settled conditions and reduced prices and at the present time there must be a large accumulation of work of this description which has been held back from time to time, and while this condition has reduced business for the latter part of this year, we look forward to greater activity in the early part of 1921," says H. O. Morris, assistant general sales manager of Steel and Radiation, Ltd., Toronto.

"We have great faith in the future, especially so far as Canada is concerned, and do not think there is anything that can stop prosperity in this country."

Pointing out that business in sanitary enamelled goods is likely to remain quiet for a short time yet but will revive on the expected resumption of building, C. A. Lusby, secretary-treasurer of the Amherst Foundry Co., Ltd., Amherst, N.S., states as follows:

"The market for sanitary enamelled goods depends largely on the building operations throughout the country, which, as you know, have been of very small extent during the past year, owing largely to the high cost of materials used in the construction of buildings. Notwithstanding this, business has been fairly good with us along this line, but it has now ceased almost entirely. We think during the next few months business will be very quiet, but when raw materials used in building decline in price, there should be a good demand for

Charge of Collusion Investigated

Roebuck Report to Ontario Attorney-General Says No Grounds for Charge Re Price Agreement Among Supply Houses—Other Charge To Be Investigated

A REPORT regarding the alleged combine in regard to plumbing prices and as to collusion between the Master Plumbers and the Plumbers' Union, in Toronto, has been made to the Attorney General of the Province of Ontario, by A. W. Roebuck, of the law firm of Mackenzie, Roebuck & Gordon, who has been investigating the matter at the request of the Attorney-General. So far this official has declined to discuss the report or what action he contemplates taking. He has pointed out, however, that investigation has shown that the main charge is that the members of the Master Plumbers have endeavored to exert some control over plumbers generally, resulting in some employing plumbers being unable to get men. The charge was made by a member of local 46, that such control was exerted to endeavor to force all master plumbers to become members of the master plumbers' organization.

"This condition may have existed about six months ago but I doubt if it is the case today," said the Attorney-General. "It seems that the complaints were over large jobs and not small ones."

No Complaint re Prices

Hon. Mr. Raney states that Mr. Roebuck has reported that there is no complaint regarding prices charged by the supply companies. The latter was the chief point of contention as far as the

public was concerned, and local agitations for a full enquiry into prices on plumbing supplies were commenced on the basis that the continuation of high prices unnecessarily was helping to restrain building activity. It was thought that because there was uniformity in plumbing supply prices there must be some measure of price understanding or agreement. The anti-combine law distinctly prohibits price combinations of the type that must be formed to make a uniform selling quotation for various classes of plumbing supplies, and no doubt action could be taken if such were proved to exist. Mr. Roebuck's assurance on this point therefore clears the air.

Regarding the other charge of collusion between the masters and journeymen plumbers, it is understood that the agreement between the union and the masters; but which does not appear in writing, is that the association will get first calls on the plumbers. This is one of the points to be investigated and it is possible that a commission will be appointed to deal with this matter, on the recommendation of Mr. Roebuck.

Interviewing a master plumber who is not a member of the association it was pointed out by him that he could now get any plumbers he needed on a big contract but a short time ago he could not. Lack of employment has changed conditions somewhat recently.

enamelled sanitary goods as there is a great need of building throughout the country.

"Regarding stoves and hot air furnaces, business during the past few months has been very good. We find, however, that recently the market has

dropped off almost entirely and we think it will be very quiet along this line for the next few months. Of course, the autumn is the most active season for stoves in any case. We expect business will pick up again during next summer and autumn."

Price Changes in Plumbing Supplies

A comparison of prices of plumbing supplies of the present date with those in effect on January 1st, 1920, shows an average increase of nearly 10 per cent.

The advances have been largest on manufactured goods, and the decreases are chiefly on lead products and ingot metals which are lower in price than a twelvemonth ago.

In the following table 100 is taken as the index figure, and 125 would mean an advance in price of 25 per cent., and tin, which is indicated by the figure 70, has declined 30 per cent.

Range Boilers, standard	125	Wares, Bath Tubs	111
Do., heavy	129	Do., Lavatories	111
Pipe, wrought, ½ in., black	116	Sinks	111
Do., gal., 1 inch	111	Bar Iron, base	112
Lead Pipe	107	Black Sheets	130
Soil Pipe	122	Galvanized Sheets	112
Conductor Pipe	139	Canada Plate	174
Boiler Tubes	113	Ingot Metals, Tin	70
Cast Iron Pipe Fittings	111	Do., Copper	78
Malleable Fittings, galv.	118	Do., Lead	74
Lead Traps and Bends	105	Do., Spelter	70
Solder, Commercial	72	Do., Antimony	67
Bath Cocks, Compression	107	Do., Aluminum	109
Globe Valves, standard	123	Oakum, Plumbers	88
Scrap Brass, light	71	Cotton Waste	119
Wrought Iron Scrap, No. 1	129	Red Lead, dry	115

Montreal Master Plumbers in Convention

Report of Strike Committee—Membership Doubled in Three Years—Practically All Officers Re-elected—Assistance of Plumbers in Framing Montreal Building By-law—Outlook is Bright.

MONTREAL.—The Master Plumbers' Association of Montreal concluded at its annual meeting held in the Builders' Exchange last week one of its most successful years since it obtained incorporation in the Province of Quebec, which was assented to on January 12th, 1895.

Reports from standing and special committees were received. Officers were elected, and a program of activities outlined for 1921. D. A. Bethune presided over a large, representative and enthusiastic gathering.

J. E. Walsh, acting in the unavoidable absence of James Ballantyne, convener, submitted the report of the Strike Committee. He recalled that Local No. 144 of the International Union of Plumbers and Steamfitters had gone on strike on October 5th, and as certain unpleasant episodes had taken place during its course the association had found it necessary to apply on November 5th to Mr. Justice Bruneau of the Superior Court for an interlocutory order of injunction to enjoin the business agent of this local, his servants, agents and employees to refrain from all intimidation, molestation, interference and picketing of the members of the Master Plumbers' Association of Montreal and its servants and employees until the court shall have finally passed upon the merits of the action. Mr. Justice Bruneau immediately granted the required order. Since then the Strike Committee has considered, in consultation with the association's law agents, the advisability of endeavoring to extend the scope of this injunction, as had been successfully attempted in cities in the United States, notably Detroit, but was not yet prepared to report a definite conclusion. However, during the next month some important developments were to be expected.

Secured Police Protection

Further, Mr. Walsh reported that since October 5th the Strike Committee had made suitable arrangements whereby police protection was given to the mechanics employed by the members of this association, and by which plumbers and steamfitters desirous of working for their members should have safe and comfortable transportation provided to and from their jobs to their homes. As a result of the arrangements made, their contracts and jobbing work had only been interfered with slightly and temporarily and specially as the co-operation of the members had secured that their fellow members who were pressed to have work completed by certain dates were amply supplied with the plumbers and steamfitters they needed. For the

future, Mr. Walsh assured the meeting, they need have no fear as the Catholic and National Workers' Syndicate, with whom they had an agreement, and which was being loyally observed by both parties, was increasing in strength and influence daily. The Strike Committee ap-



D. A. BETHUNE

Re-elected president of the Montreal Master Plumbers' Association at the annual convention.

preciated the loyalty of the association in standing behind all their decisions and asked that as its work was not yet complete it be continued. The report was adopted unanimously.

Membership Doubled in Three Years

D. K. Trotter, the secretary, in presenting his annual statement, reported that within the last three years the association had doubled its membership and now included the largest and most reputable firms in the city. The financial statement submitted showed on current account a credit balance of over \$1,700, while all liabilities had been wiped out. Their capital account, which was largely an emergency account, was in a healthy and sound condition.

Next came the report of the Nomination Committee. It showed that its members this year without prearrangement were all past presidents of the association, and that they had devoted much time to the consideration of the claims and merits of members for the different offices. In their work of selection they had proceeded along the lines established in previous years, keeping in view also the by-law which stipulates

that the prevailing majority of the officers and committees shall be French and English in alternate years. But, on this occasion, precedent was disregarded by the meeting, which refused to accept the "slate" proposed, and the officers who had served the association so well during 1920 were with one exception unanimously re-elected. J. P. Linton, who had been second vice-president and had indicated his desire that his name should not go forward for re-election, was replaced by Jos. A. Francoeur. The officers for 1921 are therefore as follows:

Officers

President—D. A. Bethune.

First Vice-President—H. Lavigueur.

Second Vice-President—Jos. A. Francoeur.

Representative to Board of Directors of Builders' Exchange—T. A. Latourelle.

Chairman of Sanitary Committee—Jos. Brunet.

Chairman of Arbitration Committee—L. E. Moulton.

Chairman of Legislative Committee—A. Noel.

Chairman of Apprenticeship Committee—John A. Gordon.

Chairman of Price List Committee—J. E. Walsh.

Audit Committee—Messrs. Walton, Giroux and Daoust.

Trustees—Messrs. Delaney, Charette and Hardy.

David K. Trotter was unanimously re-appointed secretary and the association showed its appreciation of his services during the past year in a very substantial way.

Assistance in Framing Building Bylaws

D. A. Bethune in assuming the presidential chair for a second time, and after thanking the members for the signal honor they had conferred upon him, stated that all their meetings during the past year had been conducted with the utmost harmony and the spirit of brotherly co-operation among the members had never been greater than it was today. During the year now almost past the association had given great assistance to the city authorities in framing a new set of building by-laws for Montreal. The question of an equitable apprenticeship system had been considered and he hoped the apprenticeship committee would before the fall be in a position to submit a plan that would have the unanimous support of all the members. Throughout the year the associa-

tion had stood consistently for the policy of the "open shop."

Outlook Is Bright

The outlook for 1921 is regarded as being very bright, and it is pointed out that while building contractors did not have as much work as they could handle, yet master plumbers have had a very successful year. There was new work to be done and many people also

had a great deal of new sanitary work done in buildings which had been erected some time. With the expected increase in population and a scarcity of houses now estimated at between 5,000 and \$1,000, there is every reason to feel optimistic for the future and the trade anticipates plenty of work for the coming year.

What Other Papers Say

TAX ON MAKING UP STOVEPIPES.

"I wish you would explain in your valued paper," writes a subscriber, "why we small merchants must be taxed and annoyed to the limit of endurance." He carries on the business of plumbing, lighting, heating and tinsmithing, and he received recently from a large manufacturing firm, whose goods he handles, the friendly advice that "if you operate a tinshop or make up stovepipe you are classed by the Government as a manufacturer" and would be required to take out a manufacturer's license, costing \$5. "Until you secure this license," says the notice, "we will be obliged to charge you two per cent. sales tax on all invoices, but as soon as you secure a license and advise us of the number—which, by the way, must be stamped on all written orders—we will only require to charge you one per cent. sales tax. Will you please give this matter special attention, as we do not wish to be under the necessity of charging you the extreme tax of two per cent."

The present sales tax, therefore, entails extra labor and bookkeeping upon the real manufacturer as well as upon the distributor, whom in this instance it was intended to reach. Our correspondent continues:

"Because I employ one tinsmith to make up stovepipe and set up stoves I must pay to the Government a fee as large as a manufacturer who has a turnover of half a million, and I must employ an extra bookkeeper to keep books for this purpose. I pay for a retailer's license, I pay an exorbitant premium on accident insurance to the Government, on a preferred risk, where in fourteen years there has not been an accident; local taxes are also very heavy, but it does not cost all they collect to keep up this red tape. Now I am not complaining about revenue properly collected, but it looks to me as though some drastic action will be necessary to save the small distributor in rural districts."

The incidence of the sales tax as described by our correspondent undoubtedly is unjust to merchants and distributors all over the country, and the only explanation we can offer is that the Government requires to classify those who "make up stovepipe and set up stoves" under the heading of manufacturers in order to swell the list of them and to show what a blessing the protective tariff has been to the people of Canada.—Toronto "Globe."

CANADA'S BUILDING TRADE

Canada's building record for the month of November shows construction contracts awarded in all the cities, towns, villages and rural districts total \$15,399,200, as compared with \$18,169,500, and \$16,995,200 in November, 1919.

The total for the eleven months of 1920 is \$246,859,000, compared with \$181,131,900 during the corresponding months of 1919, and \$94,562,400 in 1918, an increase of 36.3 per cent. over 1919, and 161.1 per cent. over 1918.

In Ontario the contracts for November amounted to \$3,902,800, as compared with \$10,154,800 in October, and \$7,481,100 in November, 1919.

For the eleven months of 1920 the total is \$106,135,500 compared with \$82,431,900 during the corresponding months of 1919, and \$31,983,000 in 1918, being an increase of 28.7 per cent. over 1919, and 231.4 per cent. over 1918.

Where Heating Engineers' Work Ends and Plumbers' Begins

THE following report in an English trade paper deals with an interesting point: "Two of Manchester's municipal housing schemes—one of them the direct labor experiment on the Gorton Mount estate—have been impeded by a plumbers' dispute. It arose over the installation of the central hot water system, the plumbers claiming, as they have done on many other occasions, that as the supply was for domestic use the work was theirs. The heating engineers, however, also claimed the job, and matters reached a deadlock some time ago, so that neither side could proceed. The plumbers also left the other work on the schemes, but after the Manchester and Salford Trades Council had failed to bring the parties to agreement, the plumbers returned tentatively for a fortnight, on the understanding that the Ministry of Labor would take the matter up. Several conferences with a representative of the government department have taken place without avail so far, and the plumbers have not only again left work, but are determined to remain out

until the dispute is definitely settled. They contend that this class of work has never been done by anybody but plumbers, and forms the major portion of their job, in Manchester at any rate. Mr. Harris, the secretary of the Manchester branch of the Operative Plumbers' Union, claims that in all the other city housing schemes the architects have assigned this part of the contract to the plumbers, and that the Housing Committee has promised to do so in these instances—a promise that has not been fulfilled. The plumbers also claim that the work of heating engineers should be confined to the heating and warming of buildings, and that in this particular job they should install the plant and leave the distribution to the plumbers. The heating engineers hold that the dispute should be settled nationally, for where the plumbers' work begins and where the heating engineers' ends is no new question. Perhaps something lastingly conciliatory will result from a conference between the two affected unions, which has been arranged by the Minister of Labor for next week."

METER TORONTO WATER SERVICE

Toronto.—The Bureau of Municipal Research recommends the metering of all Toronto water services. It cites the 1918 consumption of 128 gallons per capita per day as excessive to the extent of about 28 gallons. It suggests that the waste which this involves should be stopped.

A LOST SEWER IN ST. THOMAS

St. Thomas, Ont.—Is there a lost sewer under William street from Wellington street to St. Anne's place of sufficient size to serve all the residents of that section of William street? County Police Magistrate Hunt claims that there is; that an eight-inch sanitary sewer was laid under the street railway tracks along William street several years ago, but, in some manner, was not included in the city's plans.

The Squire, accompanied by J. L. Jones, a new resident in William street, appeared before the Board of Health and reported their discovery and requested that the proposed sewer extension

from the corner of St. Anne's place and William street, along William, to Wellington street, be not carried out. The Board of Health members at the meeting were inclined to be a little skeptical about the matter and decided to call a special meeting in a few days to make a thorough investigation.

FAVORS SEWERAGE SYSTEM FOR ALMONTE

Almonte, Ont.—W. E. Scott, ex-mayor, believes that Almonte should have a system of waterworks and sewerage, and he suggests that steps be taken at once to secure proper information and evolve a definite plan which should be laid before the people next year. He would have a waterworks committee appointed whose duty would be the consideration of the whole matter and all questions pertaining to it.

Montreal.—A safe in the premises of the American Plumbing Supplies Co., 14 Craig St., was blown on Christmas afternoon.

Sanitary Appeal Sells Water Systems

Rural Dwellers Pay Attention to Statistics Showing Better Sanitary Conditions With Water System—Long Hours of Drudgery and Unhealthy Conditions Can Be Eliminated—Water Systems Pay Big Dividends—Farmer Buys Facilities of Less Importance

THE WASTE of woman power is one of the greatest menaces to the rural life of the nation, according to those who have made a study of such matters. A well directed investment in modern equipment for farm homes would prevent a large part of this wastage of the energy of the nation's rural homemakers and it is a very doubtful business policy for farmers to use increased income to buy more land instead of using part of it in raising standards of living so that women and young people will not want to go to the cities in search of more attractive living conditions.

The working day of the average farm woman is 11.3 hours and 87 out of each 100 women on farms have no regular vacation during the year. According to an estimate in 60 per cent. of the homes there is no water in the kitchen and the women must go to the spring or pump and carry all water needed for cooking, bathing and washing. Ninety-six per cent. of the farm women do the family washing, and only half have washing machines. Seventy-nine per cent. of the women depend upon kerosene lamps. Ninety-two per cent. do some or all of the family sewing. Ninety-four per cent. make some or all of the bread. Garden work is done by 56 per cent. and 60 per cent. have churning to do. More than 80 per cent. of the poultry flocks are cared for by women. One-fourth of the farm women help to feed and bed the livestock and 24 per cent. of them spend over six weeks in the year assisting with some part of the field work. All this is in addition to cooking the family meals, caring for the children and keeping a fair-sized house in order.

The installation of running water, a bathroom, a modern heating system, a lighting system, power to run the washing machine, churn and other labor-saving implements would release these women from most of the drudgery which now sends them to bed with a prayer "that their strength may be equal to to-morrow's duties." In other words, the farm home should be as well equipped as the up-to-date barn, which the practical farmer has now come to believe a necessity.

Appeal on Behalf of Women Folk

The use of modern facilities in the barn is equally as much advantage as in the home, but oftentimes a farmer can be appealed to stronger if the question of lessening the strain on the womenfolk and the improving of conditions

GREETINGS FROM THE PRESIDENT OF ONTARIO SOCIETY D., S. & H. E.

From the president of the Ontario Society of Domestic, Sanitary and Heating Engineers.

To the members of our society and members of the craft at large.

It is our desire to express to you, one and all, the wish, upon which our society is founded, viz., Greetings and Goodfellowship to all participating in the plumbing industry (all for one, and one for all).

In this period of unsettled conditions let us unite that we may prepare to weather conditions with least hardship, help the weak and console the erring. Remember, busy times succeed depression as well as night succeeds day. Keep a cool head and have a stout heart.

THOS. J. MINNES.

so the children will not wish to leave the farm are brought into it. There are many farmers of the old school who feel well enough inclined to continue their daily toil as they have always done, without the aid of modern facilities, who would be moved by an appeal based on actual figures as to how the housework could be lightened and lighting and water systems made to pay dividends.

The sanitary appeal is also an important one in connection with the installation of water systems. A farmer recently stated to Sanitary Engineer that if farmers realized the danger of contamination from closets located near the well water, they would be quick to take action towards more sanitary installations.

One Home in Five Has a Bath-tub

An investigation recently conducted by the U. S. Department of Agriculture, after a nation-wide canvass of farmers' homes, showed that while only one home out of every five had a bathtub, nine out of every ten homes had sewing machines. This condition indicates that the true importance of sanitary equipment is not appreciated as it should be. Under the conditions described, the labor-saving and money-saving factor was appreciated and a sewing machine purchased, but the health-saving quality and the improvement of farm conditions were overlooked in neglecting to instal a water system.

It was found that in the barn and for outside work on the farms there were all sorts of equipment and conven-

niences in use. It was in the homes of the farmers' families that the lack of sanitary equipment was found. The following figures compiled by the Department of Child Welfare at Washington show the need for sanitary facilities in the home.

It was found that:

Where water must be carried into the house from outdoors, the death rate of babies is 198 out of every 1,000.

Where water is piped into the house from city services, the death rate decreased to 117 out of 1,000.

Where there are bath tubs connected with running water and sewerage, the death rate decreased to 72 out of every 1,000.

In homes where there are water closets, the death rate is 108 out of every 1,000.

While the statistics given here refer to conditions in the United States, they are equally, if not more, relevant to Canada. Plumbers will not wonder why nine out of every ten homes have sewing machines when they consider how active agents for sewing machine companies have been in canvassing the farmers' homes and how lax has been the effort to educate the farmers along sanitary lines.

Plumbers, in placing these facts before farmers, as sewing machine agents have done, will bring them to the right point of installing sanitary equipment in the home, that is necessary to health, comfort and prosperity.

Buys Articles of Less Importance

The claim is made by some students of economics that farming must be more profitable before farmers can afford such conveniences. It has been proved, however, that the farmer has spent money on facilities which have less value to him than water systems and it is one of the strongest arguments in favor of water systems that their installation can be made to pay dividends in the shape of better living conditions, improvement in the health of every human being and animal on the farm, and the resultant increase in efficiency and production as a result. Many plans to assist the plumber in selling water supply systems have been outlined in Sanitary Engineer from time to time, but these suggestions may be linked up effectively with other efforts.

Farmers during the winter months have more leisure than in the summer and it is therefore a good time for plumbers to go strong after the busi-

(Continued on Page 36)

EDITORIAL COMMENT

PLUMBING TRADE OUTLOOK FOR 1921

AN active year in plumbing supplies is expected next year by a number of manufacturers and jobbers in expressing an opinion as to the trade outlook for 1921. As in nearly every line of business, lack of buying interest has been brought about by a lack of public confidence in prices. People generally do not believe present prices represent a normal level, and until the maximum efficiency is reached in production this distrust will continue. It has had a very restraining effect upon the building industry. It is not expected that prices will go back to pre-war levels as a general decline; on the contrary, prices may well be expected to settle higher than the old schedule, but if they represent full value on the basis of efficient production, then people will buy.

The cost plus percentage contract basis in building is said to rather restrain than encourage building. It indicates that the market for materials is by no means steady, and that someone must take a chance in building under such circumstances. The contractor will not take the chance and the builder dislikes to do so. A straight contract price that secures and gives reward for efficient work is held to be the best basis on which to encourage building. Buyers of plumbing and heating supplies are slow in ordering under such circumstances, but it is expected that if the expected signs of a return to normal conditions begin soon to materialize, that trade will revive. Meanwhile the efforts which plumbing and heating engineers have been called upon to put forth to secure business from existing buildings will help to greater efficiency in business which should bring greater rewards to the trade in years to come when new building adds its usual zest to the business now being secured.

MAKING STRIDES IN SANITATION

ONTARIO has made good strides in the past ten years to insure pure water for domestic use from municipal waterworks systems. The fact that pure water is essential to good health does not indicate much, and its true significance is lost sight of in such a statement. Before the development of the science of bacteriology the association of water with certain diseases was largely conjecture from coincidences of the prevalence of the disease and the use of water from a particular source. The cholera outbreak in England in 1854 was traced to the pol-

lution of a particular well. Recent investigations have suggested that diseases other than typhoid are associated with water impurity, and that a reduction in typhoid rate means improvement in the general mortality rate.

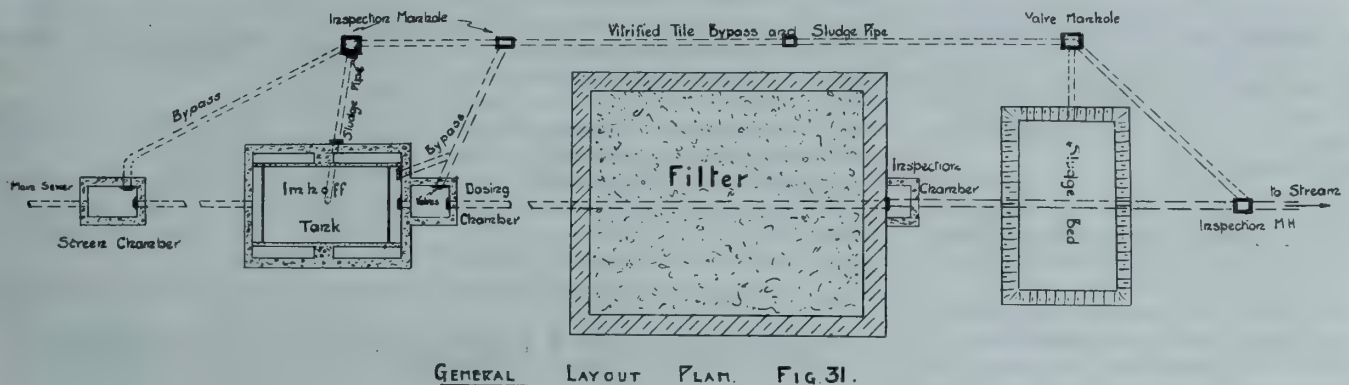
A movement for the improvement of water supplies in the United States and Canada naturally followed laboratory findings, but was handicapped by an uninformed public. The Province of Ontario was affected by the prevalence of the disease in the State of New York, the States of the Middle West, and the flow of population across the boundary. Improved legislation was granted the Provincial Board of Health in 1912, and a renewed effort to improve existing water supplies was undertaken. What has been accomplished places Ontario in a leading position so far as typhoid reduction is concerned. With a mortality from this disease in 1919 of only 5.6 per 100,000 of population, as compared with 31.5 ten years ago, Ontario may be said to be making big strides in sanitation.

INVENTORY AND ACCURATE RECORDS

THE importance of plumbing and heating engineers making a careful inventory of stock on hand at the end of 1920 cannot be over-estimated, particularly in view of prevailing conditions. On an advancing market it is comparatively easy to take profits and the dangers of neglecting records are minimized, but conditions have changed, and buyers are holding back waiting for lower price levels. The condition calls for more attention to records and the cleaning up of stock so that the plumber will know exactly where he stands, and be able to guide buying accordingly in future. In a declining market the stock on hand should be inventoried at actual cost price, or if it has declined, the replacement cost should be noted. Some merchants adopt a depreciation column for depreciation in values. Clean, accurate records are much to be desired in the plumbing trade. They are largely responsible for the success achieved by many in the trade. Bankers are always much more inclined to extend any needed credit accommodation if accurate records are kept. A good bookkeeping system should also be used, and if both inventory and bookkeeping have been neglected in the past it is good now, at the beginning of 1921, to adopt a new policy. A good bookkeeping system is outlined in this issue.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied



Article No. 23 of the Series—Illustration 30-31

(Continued from last issue)

THE liquefying septic tank has many advantages over the sedimentation tank owing to the decomposition of part of the sludge which is a great saving in cleansing operations. Still the clarified effluent from a liquefying tank is very much more offensive and stronger, thus it places more work on the oxidizing filtration area caused through its longer contact with the decomposing sludge and the suspended solids in solution which form compounds during the process of purification so that whilst the septic tank reduces to a certain extent one of the greatest evils in sewage disposal—namely the sludge problem—yet again the clarified effluent from a settling tank does not require the same amount of treatments as that from a liquefying tank, but until some other more economical system is adopted for the destruction of sludge, there is little room for doubt that the best and cheapest form of tank installation for small communities is either a well-designed liquefying tank or modified type of same.

The longer sewage can be detained in the tank the greater the destruction of organic matter and the less offensive will be the sludge, so that in practice a limit must be drawn for economical construction on the tank accommodation.

In designing septic tanks suitable for large buildings the constructional design can follow those previously illustrated for private houses except the sizes should be increased (which must be governed by the number of persons this installation has to accommodate).

Fig. 31 illustrates a combined single chamber septic tank and artificial filtration bed, suitable for

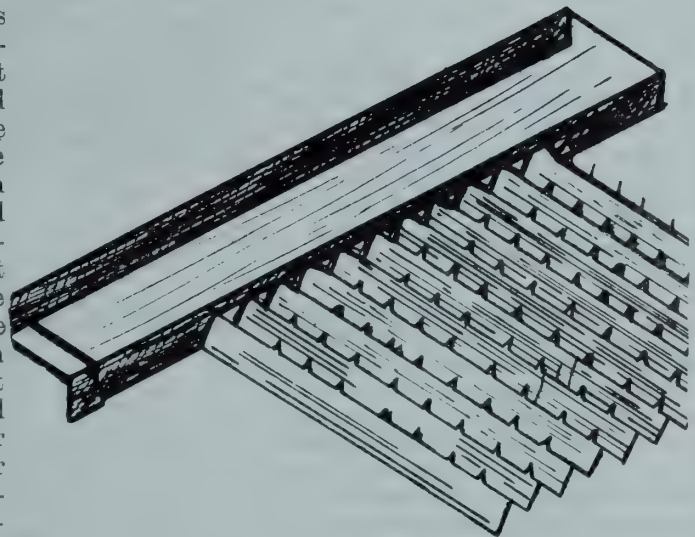


FIG. 30

a large mansion where the adjoining land cannot be utilized for filtration purposes. The septic tank is similar to those previously described having concrete baffle walls protecting the inlet and outlet openings. Current breakers constructed of wood can be placed below the inlet baffle wall to break the velocity of the incoming sewage and prevent disturbance of the deposited sludge, if considered necessary, by nailing same to the wooden plugs built in the concrete walls.

QUESTIONS AND ANSWERS

Question.—I have a shop and apartments job containing in all 2516 square feet of hot water radiation. The boiler capacity is one, 1800 and one 100 square feet. The cubic contents of each shop and other rooms are as called for in the architect's lay-out, as per blue prints sent herewith.

I am informed by an expert that boiler capacity is not sufficient and that boiler should be of about 3800 square feet capacity in all.

During cold weather the occupant has to keep shoving boilers and putting coal in the magazine continuously and burning about 50 tons each season, due to having to force the boilers.

Should not this job have much larger boiler capacity than 2,800 square feet?

You will notice that radiators containing only 18 square feet have same flow and return connections as ones from 30 to 60 square feet. Is this not wrong?

Please give me any information you can as to how I can get out of the trouble, as I wish to have job put in first-class working order and to have same operate as economically as to fuel and labor as possible.

Thanking you in advance for this assistance.—Ottawa, Ont.

Answer.—The plan does not give as much information as we should have before giving definite answer to the question asked in your letter. We can, however, consider that the conditions affecting the radiation required are similar to those that might be found in a building of the same size situated in your city.

The cubic content of a room is not a safe basis from which to figure radiation; the exposures and the glass surfaces must be taken into account.

We are assuming that the glass surfaces in this building are of the usual standard proportion to the floor areas of the rooms when the windows are set, and that the desired temperature is 70 deg. above zero when the outside temperature is 25 deg. below.

With the data given on your plans, and with the figures assumed by us, we have reached the conclusion that the boilers installed are quite large enough to heat a building of the size shown on the plans.

It appears that there is more direct radiation set in the store than is actually required.

An engineer making a superficial examination of the building might very easily make the mistake of supposing that the boilers were too small for the load of radiation installed. For the usual way of figuring radiation, the boilers are too small, but in this case it is a matter of having more radiation than is required.

Each store has 531 square feet of radi-

ation. This is about 230 square feet too much.

The radiation in the living quarters is not much in excess of what it should be; but it might be better balanced. The living room has a radiator of 58 square feet; it should have a radiator of 65 square feet. The maid's bedroom has 52 square feet; thirty-eight feet should be enough.

As an example of the unbalanced lay-out of the radiating surface we may compare the sizes of the radiators shown in the living room and in the maid's bedroom.

Here are two rooms, one of which is

lighted by a large bay window; the other has, likely, a much smaller window. One of these rooms has a greater area of exposed wall surfaces than has the other; yet both of these rooms have almost equal areas of heating surfaces in their respective radiators.

The plans do not show the piping lay-out; so we are unable to state if any of your difficulties come by reason of faulty design of the piping arrangement.

The radiator tappings approximate the usual practice for plants of this kind.

The boiler appears to be almost too far from the flue.

We do not think that you should burn more than 40 tons of anthracite (No. 1 buckwheat) coal during the coldest of heating seasons.

NEW PLUMBING GOODS

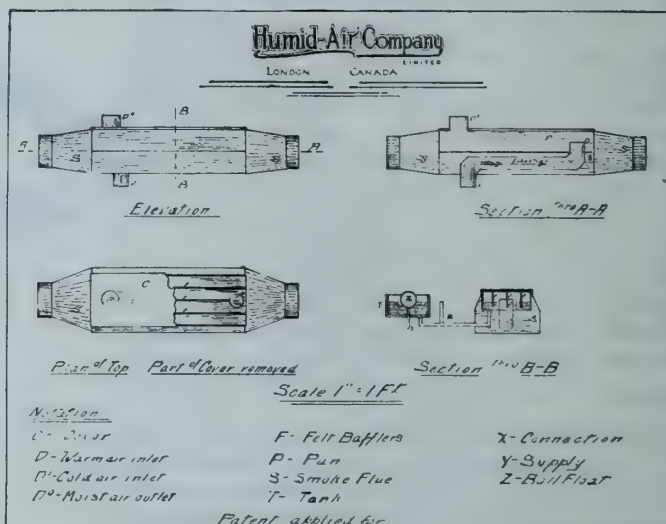
NEW HUMID AIR APPLIANCE

The condition of the atmosphere of our homes is of such importance to the health of our bodies and vigor of mind, that warming and humidification, two closely allied subjects, are receiving more and more attention as sanitary science advances. The temperature found to be most agreeable to persons not engaged in bodily exercise, viz., persons sitting or lying, is 64 deg. F., provided the air is not too dry. To heat air at 0 deg. F. to 70 deg. F., without adding moisture,

to ensure as near as possible perfect living.

Several devices have been put on the market with varying degrees of success in the past, but most of them have been either too expensive or too complicated in their operation. The Humid Air Company of London, Ont., have just brought out a device that is said to be both inexpensive and simple in its method of operation. (See diagram.)

The "Humidifier," as it is called, carries cold air from outside the building,



causes the air to become "water hungry," and as air demands moisture it will get it from somewhere, and if it is not added will draw it from our bodies, furniture or anywhere it can get it.

Dry air at 70 deg. F. is not as warm to humans as air containing the proper degree of moisture is at 60 deg. F. We have found out just what kind of air is needed for works of art, manufacturing plants and cigar factories for the proper handling of the different products, but have not, until just recently, paid any attention to keeping our homes at the right degree of heat and moisture

passes it into a pan in the smoke-pipe of the furnace, where it is heated and thoroughly humidified by contact with moisture-laden felt-wicks, and then the air, hot and moist, passes through to the living room of the house. The main advantage of this contrivance lies in the fact that it takes its heat from what otherwise would be waste heat. Its makers claim for it the distinction of being the only humidifier in the market that can be regulated to give exactly the desired quantity of humidity to the square foot, neither too much nor too little.

When this inventory is complete, file away with the other papers in the folder.

Labor and Material in Unfinished Jobs

No. 5.—This is an item frequently left out when taking an inventory. It may be that some contractors have not the necessary information to arrive at exact figures for this item. This should not prevent some figures being made up even though they are based upon estimates. If this is done, under-estimate the amount rather than over-estimate it, and use cost prices in all cases. Make records to show how the figures were arrived at, giving the amount of labor and material separately. File in folder with other papers.

Fixtures, Tools and Delivery Equipment

No. 6.—The information covering the quantities of these items will be on the inventory. They should be priced at their present value.

Personal Accounts Other Than Customers'

No. 7.—These accounts will not be found in every office. Frequently the contractor, or individual partners have personal accounts on the books covering withdrawals of cash at various times. These accounts, however, should not be confused with the account representing their investment in the business. That particular account is separate and distinct and, for a single proprietor, should be headed under the individual's name, thus: John Smith, Net Worth Acct. If a partnership exists, there should be an account with each partner covering his investment in the business. These accounts, for a partnership concern, should be titled (Partner's Name), Investment Acct.

Sometimes there are accounts with employees and outsiders for items other than sales. The details of each account should be made up on a separate sheet showing the net balance due, to or from the business. These should also be filed in the folder.

Accounts Owning

No. 8.—Make a list of these, similar to the list of customers' accounts. Be careful to include in it all invoices for material that has been included in the inventory. If there are invoices on hand for goods not received, do not include such invoices in this list, but enter them on the new books after they have been opened.

Go over each account carefully, making sure that there are no items included that you do not owe.

Notes Payable to Banks and Individuals

No. 9.—Make a separate list for the notes owing to your bank and those owing to any individuals. On these lists show the date of the note, to whom pay-

able, when due, the amount and the rate of interest. If this information is not in the office it can be secured at the bank. In any event be sure to include in these lists the amount of every note you owe. File these lists away in the folder.

Your folder now contains all the information necessary for making the opening entry. Now take a sheet of ruled paper with two columns for dollars and cents, known as Journal Paper. Turn to the monthly trial balance sheet in the large binder. Copy all the accounts under the heading assets, also the accounts material and productive labor. If you have any personal accounts owing to the business, as mentioned under heading No. 7, copy the names of such accounts. Next copy the names of all the accounts on the monthly trial balance under liabilities. If the firm owes any account to individuals for items other than regular monthly bills, copy the names of these in also. At the top of the two columns write the words assets and liabilities. The figures contained in your folder are now ready to be entered on this sheet.

In order to make our explanation simpler and clearer we show—over Fig. 1—the statement as it will look when finished. Opposite the name of each account we have inserted the heading number applying to it as given in this article.

If you have numbered each set of papers or sheet according to our headings, it will be of great assistance to you. Now, copy your figures in and foot each column. Be sure your addition is correct.

You will now find that the total of your asset or debit column exceeds that of your liability or credit column. This amount is to be entered in the liability column opposite the proprietor's net worth. If the firm is a partnership this will have to be divided up among the partners' investment accounts, according to the terms of the partnership agreement. After entering the net worth, the totals of the two columns should be entered. Both should be the same. Draw a double line under them.

You now have an exact copy of your opening entry. The next step is to enter it on your books. The entry is made in the purchase journal, using the two columns under the heading, "General Ledger." After the entry is made, write beneath it the following explanation: "To open up new set of books beginning Jan. 1, 1921" (or whatever the date is.) Above figures arrived at from previous books and other information available; for details see folder in files marked Closing Papers—Dec. 31, 1920."

Now turn to the general ledger and post each item to its respective account, being careful to enter it on the correct side—that is, debits on the debit side of the ledger account and credits on the

credit side. After doing this, go through your ledger and add up the debits and credits separately, being sure both totals agree.

Your general ledger is now started. The next step is to open up the customers' ledger. Take the list of customers' accounts from the folder and open up an account with each one. On the first line on the debit side enter as follows: "Jan. 1, 1921, Balance from Old Ledger, \$19.25." If the balance appears on your list on the credit side, make the entry on the credit side of your ledger. After doing this, add up all your balances, and be sure the total agrees with the amount shown in the opening entry on the purchase journal opposite customer's ledger controlling account.

Do the same with the accounts you owe, comparing the total of these with the amount shown opposite accounts payable—ledger controlling account.

If you have been using a loose leaf ledger for customers' accounts and accounts payable, it will not be necessary to open a new account for each customer. Merely rule off the account and bring down the new balance. Be sure that the new balance which you bring down is exactly the same as the amount shown on the list. Accounts which are in balance, or which are being charged off as uncollectible, should be ruled off and filed away, either in a separate binder or in the back of the current binder, so that when you finish every sheet will have an account on it.

How to Close a Double Entry Set of Books and Open Up New Book-keeping System

It is much simpler for the bookkeeper to change from double entry than from single entry. This is due to the fact that much of the required information must necessarily be kept by a double entry method, while such information is usually lacking in a single entry method.

Close your books in the same way you have always done. After this has been done, make a copy of our monthly trial balance form on a sheet of journal paper. Next take your "Final Balance Sheet—After Closing," and transfer the accounts on it to the sheet of journal paper according to the headings appearing on it. In doing this it may be necessary to sub-divide some of your old accounts, such as office equipment, shop equipment, etc. It is assumed, of course, that you have taken care of such things suggested before, in this article, under single entry, as pertain to both systems. Among these are proving the bank balance and taking inventory.

After the pencil copy of the new balance sheet is completed, make the opening entry in the purchase journal, as previously instructed.

The next step is to open up your customers and accounts payable ledger, as outlined for single entry.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

PERSONAL

Galt, Ont.—A. J. Ray, tinsmith, is a candidate for alderman in Ward 3 at Galt in the coming elections.

Toronto.—B. J. Miller, sanitary engineer, was a Board of Education candidate in Ward 5.

Winnipeg.—James Mackie, head of the plumbing firm of James Mackie & Co., Ltd., has been elected president of the Builders' Exchange.

OBITUARY

Thorold, Ont.—Mrs. L. I. Hunt, wife of the late L. I. Hunt, and mother of Wm. H. Hunt, of the firm of L. I. Hunt & Son, plumbers and hardware, died last week.

ELECTED AN ALDERMAN

Moose Jaw, Sask.—Thos. J. Alexander has been elected alderman for Ward No. 1 in this city, by a majority of 56 votes. Mr. Alexander is also president of the Saskatchewan Society of Sanitary and Heating Engineers.

STORM SEWERS FOR OWEN SOUND

Owen Sound, Ont.—A motion has been adopted to have estimates prepared for storm sewers or other outside work, to furnish work for citizens out of employment.

UNSANITARY CONDITIONS IN TORONTO SCHOOLS

Toronto.—Condemning the Board of Education for spending large sums of money for the education of children in seven schools outside the city limits and erecting new and modern buildings, while no effort has been made to clean up the filth, to install modern sanitary heating and ventilating systems in city schools, ratepayers and parents of children in the Queen Victoria school district met and passed two resolutions calling upon the board to look after the interests of the old ratepayers and residents of the city before going outside of the city's borders to spend its money.

EXPLAIN PT. COLBORNE WATERWORKS SCHEME

Port Colborne, Ont.—The council arranged for Engineer R. O. Wynne-Roberts to address a public meeting and explain the new waterworks and sewage disposal plans which he has developed during the past summer. In his address and explanations, Mr. Wynne-Roberts used numerous lantern slides.

WESTERN ONTARIO NEWS

Architect W. G. Murray, Dominion Savings Building, London, Ont., will receive tenders until January 22 for alterations in connection with new offices for Elliot Marr & Co., including new heating and plumbing.

W. Johnston, of Varna, Ont., is preparing plans for a new residence to be erected in the spring, and is interested in prices of plumbing and heating.

James W. Johnston, of Hensall, Ont., is preparing plans for a new dwelling to cost \$5,000 and is interested in prices of plumbing and heating.

Frank Black, of the Hayes, Ruppell Mfg. Co., Grand Rapids, manufacturers of tanks for toilets, was in Essex, Ont., recently negotiating with the council for premises in which to locate a Canadian branch factory.

Architect W. G. Murray, London, Ont., is preparing plans for the installation of lavatories in a high school and wants prices on equipment. Estimated cost is \$10,000.

GUELPH SEWAGE PLANT

Guelph.—Secord & Co., who had the contract for the construction work in connection with the new sewage disposal plant, have finished part of their work. City Engineer McArthur says that before the plant will be ready for use aerating tanks have to be installed and the old septic tanks cleaned out and new apparatus placed in them. Up to the present \$37,749 has been paid to the Secord Co. on this contract, and the city has purchased machinery and material, bringing the total expenditure so far to \$43,477.

WANT BETTER SANITARY EQUIPMENT IN WIARTON SCHOOLS

London, Ont.—Members of the Women's Institute at Wiarton are behind a move for the installation of better sanitary equipment in the school there and have made an offer of meeting a portion of the cost of installation. It was brought to their attention that a pail of water was kept in the rooms and when anybody wanted a drink it was passed around. There were no indoor conveniences. The women decided to take the matter up in the interest of the pupils' health and it is expected that as soon as the new council is elected some definite action remedying present conditions will be taken.

News of the Maritimes

ATTENTION TO PLUMBING INCREASES WATER PRESSURE

St. John, N. B.—Commissioner Jones of the Water and Sewerage department reports that the average water pressure in the city, as recorded by readings taken in the office of the city water department, shows a marked increase during this month as compared with the record for the same period last year. The commissioner believes the improvement to be mainly due to the efforts of the inspectors of the department, who have been paying special attention to house plumbing. During the summer months two members of the staff were sent out by the commissioner to inspect all plumbing fixtures. Their reports showed that many people were allowing much water to go to waste through defective plumbing, and they were warned to have necessary repairs made. A second inspection was made to see that instructions had been carried out, and the commissioner takes the increase in pressure as evidence of their success.

The following is a comparison of the average readings for the same periods in the two years:

December, 1919, lowest 16, highest 36.

December, 1920, lowest 37, highest 41.20.

AUTHORIZE NEW PLUMBING FACILITIES

St. John, N. B.—The Board of Commissioners of the General Public Hospital, at its semi-monthly meeting held on December 16, authorized the installation of new plumbing facilities in the Epidemic Hospital, and decided to provide some accommodation that might be available for Workmen's Compensation Board patients who wished to be treated by other physicians than those on the hospital staff. The payment of \$1,636.39 was authorized for the installing of three motors to run three dumb waiters. The factory inspector, John Kelly, wrote the board notifying it that its fireman was not a licensed engineer and requesting it to appoint a licensed man. This was done at no greater cost to the board.

In spite of the fact that there are not many big plumbing contracts under way in St. John, all the local plumbers seem to be busy with jobbing work.

Plumbing Oppor

The Trade Extension Bureau of the United States reports the following existing conditions:

17,500,000 homes without Plumbing out of about 22,500,000 homes altogether.

6,500,000 of these homes should be heated, yet 1,500,000 are unheated.

46,300 hardware stores and 48,300 drug stores lack proper plumbing.

32,000 of 38,069 cigar stores have not proper plumbing.

Only 15% of 36,000 confectionery stores are suitably equipped with plumbing.

Only 68% of 15,000 schools have proper plumbing, and but 20% of the hospitals.

Schools and Hospitals! The very places where plumbing conditions should be ideal.

Port Hope Sanitary

Factory :
PORT HOPE, ONTARIO

Toronto Show Rooms :
119 KING ST. EAST

Winnipeg Office :
405 TRIBUNE BLDG.

Opportunities for 1921

While these statistics reveal conditions that exist in United States they are suitable for favorable comparison, as conditions in Canada are not better.

The opportunities for plumbing enamelware in Canada are equally great as in the United States. While the population of Canada represents about one-thirteenth of the population in U.S. (Canada approximately 8,000,000, U.S. 105,000,000), there are as many opportunities for plumbers in Canada as in the United States, as there are fewer plumbers in Canada in proportion.

From this we readily deduce that the main factor in Canada's plumbing prosperity from 1921 onward is means of bringing the trade, and through them the public, to a realization of the enormous need of plumbing enamelware in Canada.

The opportunities for the plumbing trade in Canada would be wonderful, if the needs of the Dominion were but 1 per cent. of those so recently found to exist in the United States.

Let us all co-operate to make the lack of plumbing facilities better known throughout Canada!

Eng. Company, Limited

Halifax Office :
RDY BLDG., HOLLIS ST.

Head Office :
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms :
234 BEAVER HALL HILL

Tenders, Contracts Awarded; Construction, Etc.

WATERWORKS AND SEWERAGE EXTENSIONS

Cap de la Madeleine, Que.—A privately owned water system has been purchased by the city and will be extended and improved at a cost of \$150,000.

Ingersoll, Ont.—Town Council will have plans and estimates of sewage system prepared as soon as possible to be submitted to Provincial Board of Health.

St. Lambert, Que.—Town Council will deal with waterworks extension plan costing \$40,000. J. R. Beatty, sec'y-treasurer.

St. Catharines, Ont.—City plans construction of trunk sewer in Erie street and section.

Walkerton, Ont.—Work on construction of storm sewers costing \$25,000 for town will be proceeded with early in spring and tenders called.

Westmount, Que.—Sewers will be installed by town in Crescent and Cedar Aves. A. F. Bell, sec'y-treasurer.

WATERWORKS AND SEWERAGE CONTRACTS AWARDED

St. Lambert, Que.—Contract for 8-inch cast iron pipe for town placed with St. John Drydock & Shipbuilding Co., Drummondville, Que. E. Drinkwater, Engr., will receive prices on quantity of 6-inch double gate valves, 6 inch iron pipe, 12 inch, 9 inch and 6 inch vitrified tile pipe and a number of hydrants.

PLUMBING TENDERS WANTED

Montreal, West.—Northmount Land Co., 400 William St., will receive plumbing and heating tenders for two cottages costing \$900.

St. Lambert.—D. S. Bruce, 52 2nd Ave., will receive plumbing and heating contracts for two residences, costing \$16,000.

Ottawa.—D. Shefler & Sons, 348 St. Urbain St., Montreal, will receive plumbing and heating tenders for store costing \$6,000.

Montreal, Que.—B. Despaties, 3315 Christophe Colomb, the general contractor for residence costing \$10,000 for E. N. Normandeau, 308 Gatineau Ave., will receive tenders for plumbing and heating.

Toronto.—G. E. Lyon, 734 Keele St., the general contractor for residence and studio costing \$25,000 for Mrs. F. H. Johnston, 86 Keewatin Ave., will let contract for heating and plumbing.

Ottawa, Ont.—Tenders for plumbing and heating for addition to hospital for Grey Nuns, at a cost of \$300,000, will be called in January. Material required, plumbing \$15,000, heating \$15,000.

Moncton, N. B.—F. C. Jones is erecting stores and tenements costing \$12,000 and will receive tenders for plumbing.

CONSTRUCTION AND RENOVATION

Quebec, Que.—J. J. Seguin, 82 2nd Ave., Limoilou, will erect a store costing \$18,000 at corner of Des Fosses and St. Roch Sts., next spring.

Regina, Sask.—L. R. Steele Co., Toronto, Ont., purchased Wildun Lodge and will alter building at cost of \$25,000. Plans are being prepared. Wm. Haines, Western representative, Merchants Bank Bldg., Winnipeg.

Saskatoon, Sask.—Brown & Vallance, architects, Montreal, are preparing plans for college to cost \$170,000 for Presbyterian College, Saskatoon. Dr. E. H. Oliver, principal, 859 University drive.

Lachine, Que.—Foundations for school costing \$100,000 for R. C. School Commission, 52 15th Ave., will be put in this year and remainder of work will be proceeded with early in the spring. Cardinal & Beauchamp, architects, 26 St. James St., Montreal, U. Boileau, 312 James St., has general excavating and concrete contracts.

Cap de la Madeleine, Que.—Foundations for convent costing \$80,000 for Filles de Jesus were completed this year and balance of work will be proceeded with next spring. Jules Caron, architect, 21 St. Joseph St., Three Rivers.

St. Lambert, Que.—Town Council have granted \$100,000 to St. Lambert Housing Co. to build residences and are also receiving applications for private individuals for loans.

Toronto, Ont.—J. W. Siddall, architect, Confederation Life Bldg., is preparing plans of community club for Northcliffe Club. Building will contain a swimming pool, dining room and dance hall. Bowling greens and tennis court will be provided for.

Toronto.—Erection of additional units to the following schools is contemplated by the Board of Education: Dufferin, 6 rooms; Gledhill, 6 rooms; Hester How School, 4 rooms; Wilkinson, 4 rooms; Glenholme Ave. School, 4 rooms. W. W. Pearce, sec'y-treasurer.

Moncton, N. B.—A. A. Fownes, Union St., is building a residence at cost of \$6,500 on Weldon St., and will receive tenders until December 20th for electrical work, plumbing, heating, plastering and painting.

Winnipeg, Man.—Alex. Melville, architect, 500 Bank of Nova Scotia Building, has prepared plans of alterations and additions to warehouse to cost \$12,000 for Canadian Consolidated Rubber Co., Limited, 89 Princess St.

Ottawa, Ont.—Beach Foundry Co., Broad Street, will receive tenders until December 18 for sub trades except masonry and carpentry, required in erection of foundry costing \$75,000.

Fergus, Ont.—Work will be commenced next spring on erection of fac-

tory extensions costing \$200,000 for Beatty Bros., Fergus, Ont.

Point Grey, B. C.—Twizell, Birds & Twizell, architects, 719 Metropolitan Bldg., Vancouver, are preparing plans of eight room wing for what will eventually be a sixteen-room school. This wing it is estimated will cost \$100,000 and complete sixteen-room structure \$200,000. It is undecided whether tenders will be called or work done by day labor.

Toronto.—Tentative plans are being made for a school to cost \$30,000, of two or more rooms, on the Hamilton Highway near Long Branch Rifle Ranges. Mr. Pashak is trustee of School Section 7, Port Credit, Ont.

PLUMBING AND HEATING CON- TRACTS AWARDED

Toronto.—W. G. Edge, Ltd., have heating and plumbing contract of \$29,400 for Board of Education work.

Moncton, N. B.—T. Johnston Co., Ltd., have heating contract for theatre costing \$25,000 for L. M. Higgins.

Toronto, Ont.—Sheppard & Abbott have plumbing and heating contract for factory costing \$60,000 for the Decalcomania Co., of Canada.

Toronto.—A. Hughes, 350 Coxwell Ave., has plumbing and heating contract for store and apartment costing \$6,500, for W. Headley.

Toronto.—Wm. G. Mimms, 380 Concord Ave., has plumbing contract for garage costing \$50,000 for Geo. A. Morgan.

Toronto.—F. R. Maxwell & Co., 376 Queen street west, has plumbing contract for service station costing \$15,000 for Imperial Oil, Ltd.

Victoria, B. C.—Murray Bros., Vancouver, have plumbing, heating and ventilating contracts for erection of theatre costing \$300,000 for Famous Players Canadian Corp.

Winnipeg, Man.—Cotter Bros. have plumbing and heating contracts for addition to Grain Exchange, costing \$80,000.

Montreal.—J. J. Briard, 1277 St. Dominique St., has plumbing contract for residence costing \$35,000 for E. A. Barry.

Ottawa, Ont.—J. J. Phillips, 1005 Wellington St., has heating contract for residence costing \$10,000 and another costing \$11,500 for D. Arbuckle.

Outremont, Que.—Lalande & Dubleau, 1209 Van Horne Ave., have plumbing and heating contracts for two cottages costing \$20,000 for J. O. Laverne.

Toronto.—A. W. Wilson has plumbing and heating contracts for bungalow costing \$12,000 for Dr. Cook, 114 Glen Road.

Cap de la Madeleine, Que.—P. Ladroix and A. Gregoire, Pont St. Maurice, have plumbing contract for school costing \$8,000.

Cap de la Madeleine, Que.—Massicotte & Freres have plumbing contract for store and residence costing \$6,000 for F. Marchand.

Lachine, Que.—Bruno Pilon has plumb-

ing and heating contract for store and residence costing \$25,000 for J. Theoret.

Toronto, Ont.—F. O. Swan, 1962 Gerard street, has plumbing contract for bank, costing \$17,000, for Imperial Bank. Howard Furnace Co. has heating contract.

Toronto.—Robert Ross & Son, 1349 Queen street west, has plumbing contract for restaurant for Tony Chilco.

Victoria, B. C.—Hayward & Dodds have plumbing and heating contracts for alterations to Lee Block, costing \$15,000, for Canadian Fairbanks-Morse Co.

Walkerville, Ont.—Jos. L'Heureur has plumbing contract for bank costing \$25,000 for Imperial Bank.

Winnipeg, Man.—Argue & Wilson have plumbing and heating contracts for theatre costing \$30,000 for the Garrick Theatre.

Cap de la Madeleine, Que.—Plumbing contracts for four-tenement house costing \$10,000 for Simeon La Point, St. Henri St., are placed with A. Gregoire, Rue St. Madeleine.

Cap de la Madeleine, Que.—A. Gregoire, Rue St. Madeleine, Point St. Maurice, has plumbing contract for four-tenement house costing \$10,000 for Pierre La Point.

Cap de la Madeleine, Que.—Massicotte & Freres have plumbing contract for tenements costing \$10,000 for Wiley St. Cyr.

Toronto.—Heating and plumbing contracts for five residences costing \$6,500 each on Berwick Ave., on Weismiller & MacKenzie Bros., Ltd., 1425 Queen St. West, are awarded to A. Welch & Son, 304 Queen St. West.

Ottawa.—Plumbing contract for six residences costing \$24,000 for Barrett Bros., 260 St. Catherine St., is placed with Gervin & Hodgins, Bank and Sunnyside.

Ottawa, Ont.—Plumbing and heating contracts for residence costing \$5,000 for Housing Commission, 54 Rideau St., are awarded to William Bros., Glenora Ave., and Pease Foundry Co., Lyon St., respectively.

Ottawa, Ont.—Residence costing \$6,000 for A. Davidson, 60 Grosvenor St. Plumbing and plastering contracts are placed with Gervin & Hodgins, Bank and Sunnyside, and T. Patterson, Rosedale Ave., respectively.

Ottawa, Ont.—Plumbing contracts for residence costing \$6,000 for W. A. Crawley, 178 Bethany Rd., are placed with H. Tapp, Melrose Ave.

Banks Should Not Press Merchants Unduly

Should Give Time for Reasonable Absorption of Commodities—Canada in Good Position to Recupérate

PRESSURE by the banks on the business community to hasten liquidation will not be of an embarrassing nature, generally speaking, if the advice of President C. A. Bogert to the members of the Canadian Bankers' Association is followed. Mr. Bogert, in addressing his fellow bankers, discussed the decline in commodity prices, and urged that the banks do not bring undue pressure upon borrowers against commodities for liquidation, but asked them to give reasonable time for gradual absorption of the commodities by the public, thereby avoiding further depreciation and the accompanying disturbance.

On the other hand, the banks are very much interested in speedy marketing of crops, and Mr. Bogert said it was reassuring to know that the value of Canada's exportable food products alone this year would reach very large figures, and growers of products and grain dealers should be offered all possible facilities for the marketing of these products. The fact that Great Britain is now in the market for Canadian wheat was a matter for gratification, while Belgium,

France, Switzerland and Spain had already been buying. The effect of these sales was just becoming apparent, and, although no material reductions have yet been made in the ordinary commercial loans, gradual improvement should take place during the balance of the winter.

As to the prospects for easier money, Mr. Bogert did not look for much improvement in this direction until well into this year, perhaps the summer.

Canada, in Mr. Bogert's opinion, was probably in a better position to recuperate from the war than any other country, with its great resources and steadily increasing volume of products. Many commercial readjustments would have to be made, and those engaged in lines of business holding merchandise which is depreciating in value with falling prices, would have to draw on their profit and reserve. Merchants in some lines of business would have to take losses, but he believed the majority of them had accumulated sufficient surpluses during the profitable war period to provide for these contingencies.

NEW TORONTO MAKES NEW WATER CONTRACT

New Toronto.—Mayor Charles Lovejoy has made known the terms of the agreement between the town and the G.T.R. in regard to the water supply. The agreement is to last five years, and during this period the town will supply the railroad with water at the rate of 10 cents per gallon, instead of six cents, as heretofore. This will mean an additional yearly revenue to the town from water alone of \$7,326.76. It is estimated that a total revenue of \$68,750.70 will be derived by the town from the G. T. R. in the next five years.

MANUFACTURERS' LICENSE FOR MANUFACTURING TINSMITH

A firm of sheet metal workers in Sault Ste. Marie, Ont., writes as follows: "We conduct a general tinsmith and repair shop, installing furnaces (warm air), making cornices and erecting eave-troughing, renewing furnace

pipes and making many different kinds of articles such as could not be made in a factory, as only a small quantity is required of any one kind, also stove pipes, etc. Kindly inform us if such business is taxable and if so under what heading?"

(Answer.) You manufacture certain articles from the raw material, no matter though it is on a small scale, and as such you are classed as a manufacturer, and required to take out manufacturers' license costing \$5.00. A test case is now being made to test the validity of this regulation.

USE NATURAL GAS FOR HEATING

Bridgeburg, Ont.—Mayor Gordon was notified that a special permit will be granted by the Minister of Lands, Forests and Mines, Hon. H. Mills, in view of the intense coal shortage at Bridgeburg, allowing natural gas for heating purposes to be used for a period of six weeks.

Are You Interested in Combination Heating Systems?

An interesting and practical series of articles dealing with combination warm air and water heating systems has been written exclusively for Sanitary Engineer by N. A. Kearns. This has developed into an important phase of heating installation work and such instructive articles will therefore be timely. Watch for the first of the series to appear in January 15 issue of Sanitary Engineer.

How Plumbers Can Improve Collections

A Toronto Plumber Put in a Bookkeeper and in Six Months Paid Off Mortgage Held as Security by the Wholesale—Another Puts Drafts in Bank and Increases Collection Allowance as An Incentive

"DO NOT seek further credit accommodation from your bank, but seek the co-operation of the bank in collecting accounts receivable." Such is the advice to the plumbing trade from the credit manager of one Toronto wholesale firm, in view of the recent increase in the tendency to overlook collection of book accounts with the consequent tightening of available funds and the inability of the plumber to take his cash discounts or to meet his obligations when due.

In this connection the suggestion is made that plumbers take their books to their banker and check over the list of accounts and get the benefit of the banker's knowledge of the various accounts. A decision can then be arrived at as to the best means of collection. An opportunity should be had of stating the true facts of the case to the negligent customer and if he then fails to make even a partial adjustment the plan has been followed with good success of placing a draft in the bank covering the amount in arrears. Some plumbers have followed the plan of offering the banker $\frac{1}{2}$ per cent. on such collections in place of the usual $\frac{1}{4}$ per cent., as an added incentive to arrange settlement.

Speeds Up Action

In connection with this plan it is thought that the customer is more likely to take action on the matter when in the hands of the bank than on reminders from the plumber. Another point emphasized was that seeking the co-operation of the banker in this manner would tend to strengthen the bonds of interest between plumber and banker with the resultant increasing of good faith between them, an advantage to both concerned. Such action is advised firstly in connection with long standing accounts. The plan of offering a discount for cash is being followed by dealers in some communities, but it is not thought to be necessary or advisable except perhaps in some isolated cases.

The volume of plumbing business is said to be well maintained, and the only apparent difficulty seems to be in connection with the settlement of accounts, so that the tradesman will be enabled to carry sufficient size and range of stock to maintain business, and so that he may be enabled to take advantage of cash discounts.

More Pronounced in City

The condition outlined is confirmed by the credit manager of another wholesale firm, who advises that it is more pronounced in the city than in the

rural districts. This is taken to be significant in view of the fact that city plumbers have possibly more facilities for the collection of such accounts.

This official suggests that the trade will find it profitable to devote more attention to the accounting end of their business at the present time. He cites the case of one Toronto merchant whose trade included plumbing, tinsmithing and other such departments and required more attention than could be given by the proprietor. His wife was called upon to look after the store trade, the accounts were neglected and the wholesale firm found it necessary to hold two mortgages on the store property as security. This man was advised that he was doing too much and not paying sufficient attention to the business details.

Installs a Bookkeeper

About six months ago this advice was acted upon and a girl bookkeeper was in-

stalled at a nominal salary. Since that time this business has been put upon a much sounder basis than before. Not only have the merchants' accounts been met readily, allowing him to take advantage of cash discounts, but he has made sufficient to allow him to pay off one of the mortgages against his property. This case demonstrates the advantages of systematic handling of accounts.

Under present conditions when it is more difficult than usual to collect accounts, and when the plumber must keep his business in as liquid a condition as possible the suggestion is made that many of them could profitably install a bookkeeper at a moderate salary to make collections. Customers will soon come to appreciate the fact that they are dealing with a modern business institution and the result will be what the plumber needs to help him safely over the period of readjustment.

Long Period of Depression Is Unlikely

Intervals of Revival May Be Short Until General Lower Level of Merchandise Prices is Reached — Slackening in Wholesale Trade

(Statement made to Sanitary Engineer by P. Howland, President Imperial Bank of Canada.)

PELEG HOWLAND, president of the Imperial Bank of Canada, Toronto, points out that wholesale business was good in 1920, at least until the end of November, and that the year will very likely show satisfactory results to those engaged in it. Business during that period, it is stated, was done with safety and payments on the whole were good. Speaking of the outlook, Mr. Howland states as follows:

"Since the end of November there has been a perceptible slackening as compared with a year ago, and it is anticipated that the coming year will be one of decreased sales. Reports, however, from the country indicate that merchants are not overstocked, nor can I conceive that the wants of the consuming public have been fully supplied. Of course, the reduced returns for nearly all the natural products of the country, which are really the basis of our prosperity, must curtail the capacity to buy, but with the shortage of housing, the needs of railroads that have to be supplied, and the general activities which can only be stopped in part, I cannot see how we can remain in a depressed condition as regards trade for a long period; though our intervals of revival will be, I think, short, until

cheaper labor and greater production per unit bring about a general lower level of prices of merchandise. When a level has been reached that begets confidence, then and only then, will there be an outlet for the full energy and enterprise of the people, and the return of what we call prosperity.

"It is to be hoped that in the period approaching, our Governments, not only the Dominion, but the municipal and provincial, will exercise the strictest economy. I can conceive of nothing that would give so much heart as the beginning of a steady reduction of our huge war debt.

"Can we hope, too, for simpler methods of taxation and the avoidance of those that promote dishonesty, hamper trade, and impose heavy burdens of expense in their operation?

"Also is it too much to expect that Government regulation of business will be avoided and that trade will be allowed to seek its natural channels, unhampered, under which condition it flourishes best. Prosperity comes with the distribution and exchange, in the cheapest possible way, of the products of the different classes of labor."

NEW CANADIAN PATENTS

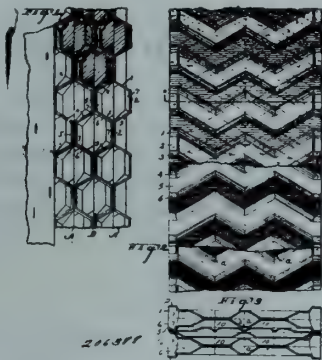
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No. 206,388. RADIATOR.

Hugo Helbig, Racine, Wisconsin, U.S.A.

A radiator structure composed of a series of plates arranged in pairs, and provided with zig-zag channels in their side faces, which are parallel to each other in the corresponding plates of adjacent pairs, and oppositely inclined in intermediate plates, with the angles formed by the zigzag channels of the opposing plates of each pair overlapping, and the successive pairs of plates being arranged in spaced relation between their margins to provide a water passage.

A radiator structure composed of a series of plates arranged in pairs, and provided with zigzag channels in their side faces, which are parallel to each other in the correspond-



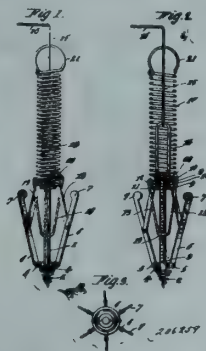
ing plates of adjacent pairs, but offset therefrom to provide air passages between the plates of one set intermediate of the passage in the next set, said channels being oppositely inclined in the plates of each pair with the angles overlapping.

A radiator structure composed of a series of plates arranged in pairs, and provided with zigzag channels in their side faces, which are parallel to each other in the corresponding plates of adjacent pairs, and oppositely inclined in intermediate plates, with the angles formed by the zigzag channels of the opposing plates, of each pair overlapping, and the successive pairs of plates being arranged in spaced relation plates being formed of sheet metal, each pressed to form said zig zag channels in one side face and corresponding ridges in the opposing face of the plate, said ridges being adapted to serve as deflectors in the water channel.

No. 206,259. WASTE PIPE CLEANER.

Louis Klarmann, North Bergen, New Jersey, U.S.A.

A tool of the class described comprising a threaded rod, a cone-shaped corkscrew-like member fixed to one end thereof, a collar mounted on said rod, at the rear end of said member, links pivotally connected with said collar, a nut having threaded engagement with said rod and provided in its periphery with an annular seat, a collar mounted in said seat and



loosely engaging said nut, links pivotally connected at one end with said collar and at their other end with said first-mentioned links intermediately of their end, and means connected to rotate said nut for opening and closing said links.

A tool of the class described comprising a threaded rod, a cone-shaped corkscrew-like member fixed to one end thereof, a collar mounted on said rod at the rear end of said member,

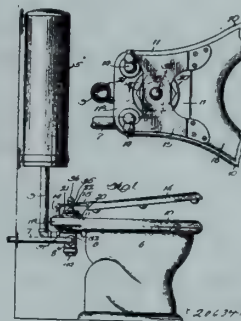
links pivotally connected with said collar, a nut having threaded engagement with said rod and provided in its periphery with an annular seat, a collar mounted in said seat and loosely engaging said nut, links pivotally connected at one end with said collar and at their other end with said first-mentioned links intermediately of their ends, an inverted U-shaped member having the free ends of its arms fixed to said nut, an actuating rod connected with said U-shaped member, and a tubular casing surrounding said nut actuating means and carried by said rod.

A tool of the class described comprising a threaded rod, a cone-shaped corkscrew-like member fixed to one end thereof, a collar mounted on said rod at the rear of said member, links pivotally connected with said collar, a nut having threaded engagement with said rod and provided in its periphery with an annular seat, a collar mounted in said seat and loosely engaging said nut, links pivotally connected at one end with said collar and at their other end with said first-mentioned links intermediately of their ends, an inverted U-shaped member having the free ends of its arms fixed to said nut, an actuating rod connected with said U-shaped member, a flexible tubular member enclosing said nut actuating means, and a U-shaped member extending transversely through said rod connected to support said tubular member.

No. 206,341. FLUSHING DEVICE FOR WATER CLOSET

The Crane Company, Chicago, Illinois.

The combination of a closet bowl having a shelf provided interiorly with a walled flushing passage and formed therethrough with a vertical straight-way opening intersecting said passage, a flushing valve casing having its outlet portion constructed and arranged in said opening for direct communication with said passage valvular means for said outlet portion movable in said casing in the opening and closing the



ends of said opening, and valve actuating means mounted on said shelf whereby to actuate said extension.

The combination with a closet bowl provided with a rearwardly projecting horizontal shelf having centrally within it a walled flushing passage, the upper and lower walls of said shelf formed therethrough with co-axial openings above and below said passage, of a flushing mechanism therefor comprising a valve casing embodying a basal inlet portion below said shelf and an upper portion having a closed top and a side outlet providing direct communication with said flushing passage, said upper portion insertible upwardly to extend through said openings, securing closure means on said casing designed to adjustably engage said upper and lower walls about said openings, valvular means for said outlet and inlet portions extending upwardly beyond said closed top, and valve actuating means mounted on said shelf independently of said casing and said flushing passage.

The combination of a closet bowl having a shelf provided interiorly with a horizontally disposed wall flushing passage and formed therethrough with a vertical straight-way opening terminally intersecting said passage and its walls, a flushing valve casing having inlet and outlet portions, the latter being constructed and arranged for direct later communication with said passage, valvular means for controlling said portions, and including a stem extending upwardly beyond said shelf, securing means on said casing for securing the casing in the opening and closing the ends of said opening, closure means for said casing comprising end members arranged to position said valvular means, and a stem actuating member carried by said shelf rearwardly of said casing.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THERE is a downward trend in the price of many plumbing lines, and it is expected that there will be a gradual lowering of the prices of some goods which have been holding firmly.

A comparison of prices of plumbing and steamfitting supplies with quotations in effect a year ago show an average advance over last year's prices of nearly ten per cent. The lines that show the greatest reduction are lead products and ingot metals.

Among the declines since the last market report are bar iron and steel, black and galvanized sheets, ingot metals, and waste materials. Some makes of valves are lower, and

some unions have been reduced in price. Lower prices on brass goods are expected, and new lower quotations on range boilers are probable in a few days.

Price lists on radiators and hot water boilers are withdrawn, and new lists may show some advances, it is stated.

At the present time there are many wholesalers and manufacturers taking inventories, and with travellers off the road business is quieter. There is a general feeling, however, that there will be a revival of demand early in the new year and that an increase of building operations is probable throughout the Dominion during the coming year and will mean bigger and better business.

MONTREAL

MONTREAL, Dec. 30.—The changes in prices of plumbing supplies are in a downward direction, and enamelled wares which recently were advanced have declined in price again. Lower prices are quoted on sheets and plates, bar iron and steel, solders, ingot metals and waste materials. Pipe fittings, too, have been revised with some lower prices.

The price lists of radiators and boilers have been withdrawn, and it is thought that higher quotations may be made on these goods.

Pipe prices are maintained, and there is a certain shortage in some sizes still, though the demand is less at the present time. There is a slow movement of compression goods, conductor pipe, range boilers and closets, and prices are holding unchanged.

Business on the whole is quieter, but this is expected at this period of the year.

Expanded Metal Lath Moving Freely

Montreal.

METAL LATH.—Expanded metal lath is greatly in demand and is moving quite freely. Many large new buildings that were late in being closed in are taking quantities of this material now, and prices are as follows:

PAINTED	
26 ga., per sq. yd.	0 42
24 ga., per sq. yd.	0 48
23 ga., per sq. yd.	0 57
Galvanized is 11c per sq. yd. extra.	
Trade discount 10%.	

Corrugated Iron Quiet; Prices Unchanged

Montreal.

CORRUGATED IRON.—There have been no changes in prices on corrugated iron, and the sales, owing to the season,

are slow. Raw materials are down considerably and it is expected that before long prices of corrugated iron will be revised considerably.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	11 25
No. 26 gauge	12 00
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75
Less 7½%.	

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Few Sales Noted in Conductor Pipe

Mon'treal.

CONDUCTOR PIPE.—Owing to the season of the year conductor pipe is moving very slowly. There has been no change in prices, but a revision can be looked for in the near future, as there

is a tendency for prices to go to a lower level.

PIPE (Conductor) Plain

2 in., in 10-ft. lengths, list.	8 00
3 in., in 10-ft. lengths, list.	9 70
4 in., in 10-ft. lengths, list.	12 80
5 in., in 10-ft. lengths, list.	17 50
6 in., in 10-ft. lengths, list.	21 30
Add 25% to the above list.	

Steady Demand For Soil Pipe

Montreal.

SOIL PIPE.—There is a steady demand for soil pipe, and sales are very fair. Prices continue to hold firm and quotations are as follows:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, 5% discount.
4-inch, 10% discount.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 20% discount.
8-inch, plus 20%.

Oakum Sales Are Reported Fair

Montreal.

OAKUM.—The demand for oakum continues to be fair at this season of the year. Price is unchanged and it is quoted at \$4.75 per 50 lb. bale.

Prices of Fittings. Are Revised

Montreal.

FITTINGS.—There is only a fair call for fittings at this time, but the demand is entirely seasonable. There have been some changes in prices, which are downward. Quotations are as follows:

PIPE FITTINGS	
Cast iron fittings	Plus 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Do., 2½-in. and larger	8%
Nipples, blk., up to 4-in.	50%

Do., gal., up to 4-in.	40%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under..	30%
Couplings, 4 in. and under	20%
Couplings, 4½" and larger	Net list
MALLEABLE FITTINGS	
Class B	0 26½ 0 37½
Class C	0 17½ 0 26½

35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

\$1.20; 2 3 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount 34% for hot water and 36% for steam. Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 34%.

Lower Prices Expected on Cotton Waste

Montreal.
COTTON WASTE.—Cotton waste is moving slowly now, but it is to be expected at this particular time of the year. Prices are unchanged, but with the mills placing new contracts in the near future, in view of the lower costs of raw materials, waste is expected to sell at lower prices. Present quotations are as follows:

WASTE	
Cream, Polishing	0 26
WHITE	
XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX grad.	0 21½
XLGR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

WOOL PACKING	
Arrow	0 35
Axle	0 28
Anvil	0 22
DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 25
Colored Cotton	0 20

Above lines subject to trade discount for quantity.

Compression Goods Moving Slowly

Montreal.
VALVES AND COCKS.—Prices on valves and cocks are unchanged, and are firm. There are few sales at this season; some manufacturers have closed down for stock taking, but it is anticipated that after the first of the new year there will be an improvement.

Compression work, standard	Less 25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard..	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	18%
Globe, angle and check valves, standard.add	5%
J.M.T.	10%
J.M.T. C	plus 10%
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

No Change in Price on Range Boilers

Montreal.
RANGE BOILERS.—Prices remain firm on range boilers. Business is quiet, and it is expected it will continue so for another three or four weeks' time.

RANGE BOILERS—	
Standard	Ex. Heavy
30-gallon	\$15 00 \$18 00

Closet Sales Are Dull at Present

Montreal.
CLOSETS.—There has been no improvement in sales of closets, and at the present time manufacturers and dealers are stock taking. It is expected that there will be a revision in prices of Vitro closets in a few days' time to a lower level. Present quotations are as follows:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Prices on Radiators Continue Firm

Montreal.
RADIATORS AND BOILERS.—It is rather significant that manufacturers of radiators and boilers have during this week sent out a circular to the trade withdrawing prices on January 1st, 1921. This might be taken at this time to indicate that there will be revisions in prices downward, in common with other lines. We do not believe, however, that this will be the case, but rather that the dealer who holds off expecting to secure lower prices will not only experience difficulty in securing supplies but will pay prices prevailing at this time. The costs of production are known to have advanced to very high peaks with little prospects for being lowered in the near future. In arriving at selling prices it has been noted that manufacturers have not advanced these on a corresponding percentage to the rising costs, and though production costs have increased since selling prices were changed last these were unchanged owing to the popular prejudice against further advances and the expectation that prices would abate. We are informed that though the workmen are now receiving big wages they will be demanding a further large increase after the first of the year. Just what action will be taken is impossible to say at this time, but the indications are that prices will not be lowered for quite a while. In the meantime the following list prices are being quoted.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in.,

New Prices on Enamelled Ware

Montreal.
ENAMELLED WARE.—Prices have again been changed on enamelled ware, and it is to be noted that the revisions are downward and quite a reversal of form to the last changes. Business continues quiet, with stock reported as being in good shape.

Sinks, roll rim, 18x30 in.	19 55
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 38 \$6 29 \$6 20
18 x 30	7 40 7 31 7 22
20 x 30	8 41 8 33 8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	\$43 69
Bath tubs, 5½ feet	48 54
Lavatories—	
17x19" Apron F139 or P4045	13 00
18x24" Apron F154 or P3845 or P3847 ..	20 06
18x21" Apron F169 or P4205	14 96
18x21" Roll Rim F197, F199 or P4655-6 ..	13 09
17x19" Roll Rim, F241 or P4345	10 71

Iron and Steel Prices Are Lower

Montreal.
IRON AND STEEL.—The situation of the iron and steel mills in the U. S. A. is now reflected in the revised prices that are being quoted locally. During the last few years the independent mills were oversold and some buyers paid big premiums to get priority shipments. These mills are now seeking business and are making prices to stimulate business. It is not expected, however, that there will be any big or continued changes in prices downward, though there may be slight concessions later.

Single reeled machinery steel	6 80
Spring steel	6 00
Sleigh shoe steel	4 55
Tire steel	4 75
Toe calk steel	5 45
Band steel	4 55
Harrow tooth steel	4 70
Mining tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common, bar iron	4 55
Refined iron, per 100 lbs.	6 05
Mild steel	4 55
3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.	

No Change in Pipe Situation

Montreal.
PIPE.—There is a continued scarcity in pipe, particularly galvanized. It is very difficult to secure supplies, and there is a fair movement at this season. There is no change in price.

LIST NO. 46 Standard Butt Weld Pipe Per 100 Ft.				
	Steel Blk.	Galv.	Gen. Wrought Blk.	Iron Galv.
¾	\$ 6.50	\$ 8.50	\$.....	\$.....
1	5.31	7.41	5.91	8.01
1½	5.31	7.41	5.91	8.01
2	7.10	8.63	7.95	9.48
2½	8.80	10.87	9.95	12.02
3	13.01	16.07	14.71	17.77
3½	17.60	21.74	19.90	24.04
4	21.04	25.99	23.79	28.74
4½	28.31	34.97	32.01	38.67
5	44.75	55.28	.....	.....
6	58.52	72.29	.....	.....
8	74.06	90.62	.....	.....
10	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel	Gen. Wrought Iron
	Blk.	Galv. Blk. Galv.
2"	\$32.01	\$ 38.67 \$ 35.71 \$ 42.37
2½"	48.26	58.79 54.11 64.64
3"	63.11	76.88 70.76 84.53
3½"	75.90	92.46 85.10 101.66
4"	89.93	107.55 100.83 120.45
4½"	1.05	1.29 1.30 1.64
5"	1.22	1.50 1.52 1.80
6"	1.58	1.95 1.97 2.33
7"	2.06	2.53 2.53 3.01
8L	2.16	2.66 2.66 3.16
8	2.49	3.07 3.07 3.64
9	2.98	3.67 3.67 4.36
10L	2.77	3.41 3.41 4.05
10	3.56	4.39 4.39 5.21

Scrap Metal Market

Dull at Present.

Montreal.

OLD SCRAP.—There have been further declines in prices on some lines of old scrap, with little business offering at this time. Toronto prices are regarded as too high yet and will decline further. It is expected, however, that there will be a good movement in these lines during the first quarter of 1921, and that there may be a firmer tone to prices.

Dealer's Buying Prices

Automobile tires	0 75	1 25
Yellow brass	0 07	0 08
Red brass	0 12½	0 12½
Light brass	4 50	5 50
Scrap zinc	0 05½	0 05½
Lead, heavy	4 00	5 00
Lead, tea	2 50	2 75
Light copper	9 00	9 50
Heavy copper	11 50	12 50
Wrought iron. R. Rd., No. 1, per gr. ton	18 00	....
Malleable scrap (ton)	15 00	....
Pipe scrap (ton)	9 00	....
Heavy melting steel	15 00	....
No. 2 busheling .....	....	....
Boiler plate	12 00	....

Some Changes

Sheets and Plates

Montreal.

SHEETS AND PLATES.—Business continues to be quiet and it is not to be expected at this season that there will be any free movement. Prices remain unchanged as follows:

BLACK SHEETS—

10 gauge	8 00
12 gauge	8 25
14 gauge	8 50
16 gauge	8 50
18-20 gauge	9 40
22-24 gauge	9 50
26 gauge	9 55
28 gauge	9 70

GALVANIZED SHEETS—

U.S. Standard		
10½ gauge	13 00	13 50
28 gauge	12 40	12 85
26 gauge	12 50	13 00
22 and 24 gauge	12 75	13 25
20 gauge	12 25	12 65
18 gauge	12 25	12 65
16 gauge	12 05	12 45
English Standard—		
28 gauge	13 50	12 50
26 gauge	13 25	12 25
24 gauge	12 65	11 85
22 gauge	12 30	11 40
18 and 20 gauge	11 60	11 25

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Lead Is Holding;

Solders Lower

Montreal.

LEAD PRODUCTS.—There have been no further changes in the price of lead products. Sales are reported to have increased during this week and that indications are that they will be on the increase from now on.

Lead pipe, per 100 lbs.	14 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10%	Net list
Lead traps and bends	0 13½
Lead wool, lb.	0 11
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10
Do., 4 to 8 lbs. sq. ft.	0 10
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	0 29½
Solder, guaranteed, lb.	0 27½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 25½
Do., wiping, lb.	0 30
Wire solder—	0 31¾
40-60	0 33¾
45-55	0 33¾
50-50	0 16½
Zinc sheets, casks	0 17½
Do., broken lots	0 17½

Ingot Metals Are

Reported Quiet

Montreal.

INGOT METALS.—Prices if anything are rather lower, and as matters are it is impossible to say what levels they are going to. The question of costs does not enter into the matter at all. While

they are certainly cheap the fact has no bearing on the situation at present.

TIN.—Owing to the holiday season in London this metal is very quiet, and there is not likely to be any change until after the first of the new year. The price shows a little weakness and is quoted locally at 42c pound.

COPPER has touched a new low level, and it would appear that prices will be still lower. Local prices are "Electro," 19c, and "Casting," 18¾c pound.

LEAD.—There has been no change in the price of lead and it is quoted at 7¼c pound.

SPELTER is easier in price and is being quoted locally at 7¾c pound.

ANTIMONY.—There is nothing new to report on this metal and the price locally is 8¼c, which is unchanged.

ALUMINUM is very quiet and the price remains the same as previously quoted at 35c pound.

TORONTO

TORONTO, Dec. 30.—The chief feature of the markets is a slight reduction in the price of closets. Anamelled ware is standing at the reduction announced in the last issue of Sanitary Engineer.

There is a downward tendency in many lines of plumbing supplies, and some makes of valves are reduced. Some unions are lower in price. Bar iron and steel continue to show easier quotations and sheets have been reduced in price. Pipe, however, shows no change, and there is still a shortage in the smaller galvanized sizes. Ingot metals continue to have a downward turn but trading is quiet. Scrap metal markets are very dull and weak and prices are nominal at present.

Business on the whole is quieter, but scarcely more so than is usual, and many manufacturers and wholesalers are stocktaking at the present time, and travellers are off the road.

Pipe Movement Less,

But Prices Hold

Toronto.

WROUGHT PIPE.—The demand for pipe is smaller now, but a fair sorting up is still reported. Stocks have been low and are gradually getting into better shape, but some of the smaller sizes are somewhat scarce yet. Prices are holding firm without change, and across the line pipe is the one steel product that a two price standard still prevails on, as the independents' prices are down to the Steel Corporation levels on practically all lines except pipe, although some price cutting has been reported recently there.

With a continued recession in raw materials the tendency on pipe should be downwards from now on.

List No. 46 is still in effect and is as follows:

LIST NO. 46
Standard Butt Weld Pipe
Per 100 Ft.

	Steel	Gen. Wrought Iron
	Blk. Galv. Blk. Galv.	
¼"	\$ 6.50	\$ 8.50 \$ 5.91 \$ 8.01
½"	5.81	7.41 5.91 8.01
¾"	5.81	7.41 5.91 8.01

½"	7.10	8.63	7.95	9.48
¾"	8.80	10.87	9.95	12.02
1"	13.01	16.07	14.71	17.77
1¼"	17.60	21.74	19.90	24.04
1½"	21.04	25.99	23.79	28.74
2"	28.31	34.97	32.01	38.67
2½"	44.75	55.28	....	....
3"	58.52	72.29	....	....
3½"	74.06	90.52	....	....
4"	87.05	107.37	....	....

Standard Lapweld Pipe
Per 100 Ft.

	Steel	Gen. Wrought Iron
	Blk. Galv. Blk. Galv.	
2"	\$32.01	\$ 38.67 \$ 35.71 \$ 42.37
2½"	48.26	58.79 54.11 64.64
3"	63.11	76.88 70.76 84.53
3½"	75.90	92.46 85.10 101.66
4"	89.93	109.55 100.83 120.45
4½"	1.05	1.29 1.30 1.64
5"	1.22	1.50 1.52 1.80
6"	1.58	1.95 1.97 2.33
7"	2.06	2.53 2.53 3.01
8L	2.16	2.66 2.66 3.16
8	2.49	3.07 3.07 3.64
9	2.98	3.67 3.67 4.36
10L	2.77	3.41 3.41 4.05
10	3.56	4.39 4.39 5.21

Pipe Fittings Quiet;

Dart Unions Reduced

Toronto.

PIPE FITTINGS.—There have been no further changes in the quotations on pipe fittings, except that dart unions have been revised in price and are now easier. From ¼-inch to 2-inch are now

20 per cent. off list, and 1/8-inch and 2 1/2-inch to 4-inch are less 8 per cent. Galvanized are 30 per cent. above black prices.

Supplies of fittings have improved and there is little talk of shortages now. Sales are smaller now and are mostly sorting up orders.

Present quotations are as follows:

PIPE FITTINGS

Cast iron fittings	Net
Plugs	15%
Bushings	17 1/2%
Unions 1/4" to 2"	30%
Do., 1/8 in., 2 1/2 to 4 in.	25%
Dart Unions, blk., 1/4 in. to 2 in.	20%
Do., 1/8 in., 2 1/2 to 4 in.	8%
Do., galvd., add to black	30%
Nipples, blk. and galvd., 1/8 to 4 in.	50%
Do., 4 1/2 in. and larger	40%
Do., running thread	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 80
Class B	0 30	0 40
Class C	0 20	0 30

Enamelled Ware Now Slower; 20% Off List

Toronto.

ENAMELLED WARE.—This is being held unchanged at 20 per cent. off list as reported in last issue of Sanitary Engineer. Sales are reported to be lighter, and wholesalers expect little new business between now and spring, and orders coming in now are for finishing up jobs or improvements.

Quotations are the following:

Bath tubs, roll rim, 4, 4 1/4, 5 feet, 24 to 30 in. wide	\$51 40
Bath tubs, 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	\$16 25
Do., do., 5 1/2 ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Closet Quotations Now Lower

Toronto.

CLOSETS.—Revised prices are quoted on closets, and constitute a reduction of \$2 on previous quotations. There is a smaller demand now, but it is expected at this period of the year. Revised quotations are as under:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelien" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Compression Goods Lower; Some Valves Reduced

Toronto.

COMPRESSION GOODS.—There is no change in bath cocks or stop and waste cocks. Some lines of valves are reduced in price and new quotations made. The demand for compression work is lighter at present. Wholesalers stocks are in fair shape, and though prices generally are holding on these lines many look for a gradual lowering on brass goods in the near future. Announcement is made of a reduction in prices of all brass goods used in the plumbing trade by the Association of Brass Manufacturers in the U.S.A., and although Canadian prices do not always follow the trend of those in the States, it is an indication of the way the market is tending. Present quotations are as under:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	16%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J.M.T.	plus 10%
J.M.T. C.	Net
Gate or straightway	Net
Jenkins gate valve	7/10%
Standard gate	list plus 5%
Jenkins Globe	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Bar Iron and Steel Show Easier Prices

Toronto.

BAR IRON AND STEEL.—Business is quiet in iron and steel, and wholesalers are generally stocktaking. Many of the mills are reported to be closed down and orders being few it is expected that a large percentage of them will not resume until the middle of the month.

Prices are holding at the recent decline and little change is expected at the present.

Quotations are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	\$ 5 50
Common bar iron, 3-16 in. and lighter	5 50
Common bar iron, 1/4 in. and heavier	4 75
Angle base	6 00
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 50
Spring steel	12 75
Mining drill steel	28 00
Common cast tool steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	7 50

Slow Movement of Sheets; Prices Decline

Toronto.

SHEETS AND PLATES.—Little that is new is noted since the last report on sheets or plates. Business is lighter, but this is not unexpected at this period of the year. Inventories are being taken by many at present and stocks are reported to be light.

There is a range between high and

low quotations, and it is possible to get better figures for quantities.

While the sheet mills report a reduction in operations there are some mills that are still at full or nearly full capacity. The latter are those operated by the Steel Corporation and many of the independents have closed down recently until early in January, and it is stated that many of these are short of orders and may remain shut down for a longer period.

The tin plate market continues weak with little buying.

Present quotations are as follows:

BLACK SHEETS

14 gauge	8 35	9 30
16 gauge	8 40	9 40
18-20 gauge	8 45	9 45
22-24 gauge	8 50	9 50
26 gauge	8 55	9 55
28 gauge	8 65	9 65
3-16 in. plate	6 50	7 00
1/4 in. boiler plate	5 50	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier	Apollo
10 3/4 oz.	9 90 11 30	10 00 11 35
U.S. 28	9 50 10 80	9 60 11 05
U.S. 26	9 20 10 60	9 30 10 75
22 and 24	9 05 10 45	9 15 10 60
18 and 20	8 90 10 30	9 00 10 45
16	8 90 10 30	9 00 10 45
12 and 14	8 75 10 15	8 85 10 30

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Corrugated Sheets Quiet; Prices Holding

Toronto.

CORRUGATED SHEETS.—The demand for corrugated sheets is seasonably quieter now, and little business is expected for the present. Prices are holding unchanged, but an easing of prices may be possible later it is thought.

General quotations are as follows:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	12 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7 1/2%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Fair Sales Lead Products; Prices Steadier

Toronto.

LEAD PRODUCTS.—Sales of lead products though smaller are reported to be seasonably fair. Prices have been reduced with the declines in primary markets and this may have helped sales. Lead is stated to have been a little more active in outside markets, but is still unsettled. Some look for lower prices yet on lead, but on the other hand the bottom is thought to have been reached by others.

It is claimed by some of the leading lead producers that at present prices lead would be selling at a loss if it were not for the fact that most lead ores contain a certain amount of silver on which there is a fixed price in the States.

No further changes are recorded and prices are the following.

Lead pipe, list, per lb.	0 14½
Lead waste pipe, list, per lb.	0 15½
Do., over 8 in., list, per lb.	0 16½
Lead pipe is subject to discount of 10%.	
Lead traps and bends Net	
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 36
Do., strictly, lb.	0 27
Do., commercial, lb.	0 25½
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 25
Zinc sheets, per lb.	0 18
Caulking lead 0 08½	

May Be Lower Prices on Cotton Waste

Toronto.
COTTON WASTE.—The raw cotton market continues to fluctuate from day to day, but no further change has been made in waste prices. New lists are probable in the next two or three weeks and will likely show an easing.

Present quotations are the following.

WASTE	
Cream, Polishing	0 22½
WHITE	
XXX	0 21½
XX	0 19½
X	0 18½
XXX	0 23
XX, grad.	0 21½
XLCR	0 20
X Empire	0 18½
E Press	0 16½
X Special	0 15½
XC	0 17½
COLORED	
No. 1	0 15
No. 7	0 14
No. 1A	0 13
No. 1B	0 12
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 0

Above lines subject to trade discount for quantities.

Conductor Pipe Quiet Without Change

Toronto.
CONDUCTOR PIPE AND EAVE TROUGH.—Not much business is being done at present in conductor pipe or trough.

Prices are holding unchanged at 25 per cent. above list.

PIPE (Conductor)	
2 in., in 10-ft. lengths, list.	8 00
3 in., in 10-ft. lengths, list.	9 70
4 in., in 10-ft. lengths, list.	12 80
5 in., in 10-ft. lengths, list.	17 50
6 in., in 10-ft. lengths, list.	21 30
Add 25% to the above list.	

TROUGH (Eave)	
O. G., Square Bead and half round. Size in girth:	
Per 100 ft.	Per 100 ft.
8-in. \$6 90	15-in. \$12 50
10-in. 7 70	18-in. 16 00
12-in. 9 16	
Add 25% to the above list.	

Conductor Elbows Holding Unchanged

Toronto.
CONDUCTOR ELBOWS.—With conductor pipe there is a smaller demand for conductor elbows just now and sales are light.

Prices are unchanged and 50 per cent. is quoted above list.

ROUND CORRUGATED OR CRIMPED ELBOWS	
2 inch, list	\$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50
Add 50% to above list.	

Soil Pipe Quiet; Revision Expected

Toronto.
SOIL PIPE AND FITTINGS.—Sales are lighter on these now, and little business is expected during the next month or so. No changes are made in prices, but revisions are expected.

Following are present quotations.

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8-inch, add 20% to list.

FITTINGS
2 to 6 inch fittings, 20% discount.

Boiler Prices Will Be Lower

Toronto.
RANGE BOILERS.—A seasonable demand is reported on range boilers, but sales are not large at present.

Prices on range boilers are being revised, but new quotations are not issued yet. An easier price is quoted on the 30 gallon standard electric welded boiler which is being quoted at \$13.50, or a reduction of \$1.50 from previous quotations.

Prices are the following at present:

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	\$15 00	\$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Boiler Tubes Unchanged and Quiet

Toronto.
BOILER TUBES.—No changes have been made in quotations on boiler tubes. Sales are light at the present and stocks are said to be sufficient for all normal demands. Following are quotations:

BOILER TUBES—	Per 100 feet	
	Seamless	Lapweld
1 inch	\$28 00	\$.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	.....
2 inch	35 00	30 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Stove Pipe Prices Are Unchanged

Toronto.
STOVE PIPES AND ELBOWS.—Some deliveries of Canada plate improved the stove pipe situation to some extent, but the demand having fallen off the shortage is not felt as much as it was.

Prices are holding and are as follows:
Stove Pipes—Made up, 6 in., common, \$23.57 per 100 lengths; bright, \$29.45; 7 in., \$26.09; Bright, \$31.22 per 100 lengths.

Stove Pipe Elbows—6 in., Light, \$3.15 doz.; heavy, \$3.65; 7 in., light, \$3.50; heavy, \$4.09.

Mild Weather Affects Heater Sales

Toronto.
STOVES AND RANGES.—The shortage in stoves is reported to be less pronounced now, and the continued mild weather down almost to the end of the year has been responsible for a falling off in the demand. This, and the fact

that merchants are not stocking up to the same extent as in previous years, and are buying from hand to mouth has enabled manufacturers to accumulate a little stock in foundry and warehouse. There are some reports of cancellations in heating stoves, but other manufacturers state that they do not amount to much.

Prices are holding strongly and little expectation is given of any change during the present season.

No Changes in Radiator Prices

Toronto.
RADIATORS.—Sales of radiators are reported to be lighter, but there is said to be a seasonable amount of business doing.

Prices are unchanged and lists and discounts are the following.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 34% for hot water and 35% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 34%.

Oakum, Small Demand and no Changes

Toronto.
OAKUM.—There is a small demand for this product now, but sales are lighter and prices are holding unchanged.

Quotations per 100 lbs. are as follows: special No. 1, \$20.40; U. S. Navy, \$21.60; plumbers spun, \$9.50. Small quantities extra.

Stillson Wrenches; Discount Now 40% Off

Toronto.
STILLSON WRENCHES.—The present discount on Stillson wrenches is 40 per cent. off list which is as follows:

	Each, List
6 inch	\$2 00
8 inch	2 25
10 inch	2 50
14 inch	3 50
18 inch	5 00
24 inch	7 25
36 inch	13 50
Less 40%.	

Linseed Oil, Turpentine and White Lead Holding

Toronto.
TURPENTINE, LEAD & OIL.—Prices are steadier on white lead in oil, turpentine and linseed oil and present quotations are the following: White lead, pure, per 100 lbs. in less than ton lots, \$18.55. Turpentine \$1.70 per gallon in less than barrel lots. Raw linseed oil \$1.30 per gallon in smaller quantities than barrels. By the barrel quotations are 15 cents less.

Scrap Metal Market Dull and Weak

Toronto.
WASTE MATERIALS.—The scrap metal market continues to be weak and dull. Dealers have not been pressing for sales and buying has been small.

MUELLER DOUGLAS FLUSH VALVE FOR LOW DOWN WORK

The body is of high quality red brass—uniform in thickness, with clean core work. The seat is reinforced by a bead, to prevent distortion and to insure a perfect cut-off.

Double guide for bottom wire always seats the float properly. Accurate tapping and machining insure perfect action of the *MUELLER* Douglas Flush Valve, No. A1-1275. The float is of highest quality rubber.

Prices upon request. Mail orders given prompt attention.

H. MUELLER MFG. CO., Ltd.
SARNIA, ONT.

Water, Plumbing and Gas Brass Goods
and Tools.

American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip"
Brass Rod; Brass and Copper Tubing; Forgings and Castings
in Brass, Bronze and Aluminum; Die Castings in White
Cast Iron and Aluminum; also Screw Machined Products



Quotations are very largely nominal. Wrought iron scrap and stove plate are holding fairly firm, but red and yellow scrap are weaker. Heavy lead scrap has moved downward. There is little business reported and quotations are the following:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	24 00	25 00
Scrap pipe	0 09	0 10
Yellow brass	0 07½	0 08
Red brass		0 12½
No. 1 machinery cast	34 00	35 00
Heavy melting steel	18 00	19 00
Heavy copper	0 11½	0 12½
Light copper	0 10½	0 11
Scrap zinc	0 04	0 05
Light brass	0 04½	0 05
R.Ed. wrought iron, No. 1, per gr.		
ton	23 50	24 50
Heavy lead pipe	4 25	4 75
Old rubbers, boots and shoes	0 03	0 04
Overseas lumbermen's rubber boots	0 02	0 03
Bicycle tires	0 01	0 01½
Automobile tires	0 75	1 25
Tea lead	0 02½	0 03

Ingot Metals Dull With More Declines

Toronto.

INGOT METALS.—The markets are still very dull in all ingot metals and though activity is usually not expected at this time of the year the continued decline in all primary markets together with a disinclination on the part of the buyers to carry any more stock than suffices for their immediate needs is responsible for the extreme dullness in all markets and little business.

It is pointed out that at the present rates of exchange Canadian markets are at a low level and compare favorably with American prices.

TIN.—Buying has been negligible in this metal lately. The slump continues in outside markets and London values touched low levels for the year despite the efforts of the Malay Straits Government to hold up the market by accepting all Straits tin at an equivalent of £235, c.i.f. London, which is higher than the market price in London.

Quotations locally are at 44 to 46 cents per pound.

COPPER.—This metal remains dull and there is a downward trend reported everywhere. There has been a drastic curtailment in production during the past few months, but the output for the year is expected to exceed that of last year.

Quotations remain unchanged here at 19 cents for casting copper.

LEAD.—This metal is marked by declines in all markets. While a trifle more enquiry is reported it is still dull.

Prices are lowered again and \$7.00 is now quoted.

SPELTER.—Lower quotations mark spelter this week and it is down 25 cents to \$7.75.

ANTIMONY.—Dull without any change is the report on antimony and quotations remain from 8 to 9 cents.

ALUMINUM.—This metal continues dull and unchanged in local markets, but

prices are lower on U. S. markets and are the lowest they have been there for five years. Quantities of both sheets and manufactured aluminum goods are

being imported into American markets, principally from Germany it is stated.

Prices here are unchanged at 37 to 39 cents.

WINNIPEG

WINNIPEG, Dec. 30.—Prices of plumbing and steam-fitting supplies are remaining very steady here, and little change is expected for a few weeks.

There is a likelihood, however, that cast iron fittings may be lower in price very shortly. Malleables seem firm at present. Pipe stocks are getting better all the time, and with demand as small as it is at present they should be in good shape before long. Pipe prices still remain the same.

Business is very quiet in all plumbing lines at the present time, but better conditions are looked forward to in the course of a few weeks.

Enamelled Ware

Now Quiet

ENAMELLED WARE.—There is still a small demand for baths and lavatories.

As announced in last issue of Sanitary Engineer prices were advanced to the wholesaler, but they are expected to decline again.

Pipe Is Unchanged;

Tendency Lower

PIPE.—There has been no change made in pipe quotations although the feeling is that the tendency is for lower prices.

Stocks are improving in wrought iron pipe, and before long if the demand is no greater than it is at the present they will be in as good a shape as at any time.

Quotations are the following:

Date Effective Sept. 29, 1920.

Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
1/8 in.	\$6 21	\$0 30	\$0 20	\$0 17	\$0 11
1/4 in.	5 94	0 53	0 34	0 30	0 19
3/8 in.	6 12	0 70	0 45	0 40	0 26
1/2 in.	8 24	1 05	0 67	0 59	0 38
3/4 in.	10 22	1 40	0 90	0 79	0 51
1 in.	15 08	2 08	1 34	1 17	0 75
1 1/4 in.	20 43	3 80	1 80	1 57	1 00
1 1/2 in.	24 48	3 35	2 15	1 88	1 21
2 in.	32 94	4 50	2 88	2 52	1 62
2 1/2 in.	53 33	7 18	4 60	4 02	2 68
3 in.	70 07	9 42	6 03	5 28	3 39
3 1/2 in.	88 20	11 25	7 20	6 30	4 05
4 in.	104 40	12 33	8 53	7 46	4 80
4 1/2 in.	124 20	15 61	10 04	8 75	5 62
5 in.	144 90	18 12	11 60	10 15	6 52
6 in.	188 10	23 45	15 00	13 14	8 44
7 in.	274 50	29 09	18 62	16 28	10 46
8 in.	288 90	31 25	20 00	17 50	11 25
9 in.	397 80	42 20	26 96	23 59	15 16
10 in.	369 00	40 00	25 60	22 40	14 40

Galvanized Pipe					
Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
1/8 in.	\$8 69	\$0 30	\$0 20	\$0 17	\$0 11
1/4 in.	8 28	0 53	0 34	0 30	0 19
3/8 in.	8 46	0 70	0 45	0 40	0 26
1/2 in.	9 95	1 05	0 67	0 59	0 38
3/4 in.	12 51	1 40	0 90	0 79	0 51
1 in.	18 50	2 08	1 34	1 17	0 75
1 1/4 in.	25 02	3 80	1 80	1 57	1 00
1 1/2 in.	29 93	3 35	2 15	1 88	1 21
2 in.	40 28	4 50	2 88	2 52	1 62
2 1/2 in.	65 39	7 18	4 60	4 02	2 68
3 in.	86 40	9 42	6 03	5 28	3 39
3 1/2 in.	107 10	11 25	7 20	6 30	4 05
4 in.	126 90	12 33	8 53	7 46	4 80
4 1/2 in.	152 10	15 61	10 04	8 75	5 62
5 in.	177 30	18 12	11 60	10 15	6 52
6 in.	229 50	23 45	15 00	13 14	8 44
7 in.	299 09	29 09	18 62	16 28	10 46

Cast Fittings

May Be Lower

PIPE FITTINGS.—Business is quieter in these lines and no changes have been made up to the present in prices, although there is a likelihood of cast iron fittings being reduced in price before long.

No change seems forthcoming in malleable fittings.

Sheet Demand Small;

Revisions Likely

SHEETS AND PLATES.—Sales of sheets and plates are smaller now and merchants are only buying in small quantities.

Prices are expected to be lower and with little business offering quotations are apt to be nominal.

Black Sheets—10 gauge, \$10; 12 gauge, \$10; 14 gauge, \$10; 16 gauge, \$10.35; 18 gauge, \$10.40; 20 gauge, \$10.40; 22 gauge, \$10.45; 24 gauge, \$10.45; 26 gauge, \$10.50; 28 gauge, \$10.65.
Galvanized Sheets—16 gauge, \$12.35; 18 gauge, \$12.50; 20 gauge, \$12.50; 22 gauge, \$12.65; 24 gauge, \$12.65; 26 gauge, \$12.80; 28 gauge, \$13.40; 10½ oz., \$13.80.

Range Boilers

Now Quieter

RANGE BOILERS.—There are fair sales of range boilers just now though the demand is quieter.

Prices are unchanged but a lower tendency is probable.

Following are quotations here.

30 gallons	15 00
35 gallons	17 50
40 gallons	20 40
52 gallons	27 20
66 gallons	35 00
82 gallons	48 00
100 gallons	62 00
120 gallons	77 00

SANITARY APPEALS SELL WATER SYSTEMS

(Continued from Page 17)

ness. A canvass of every farmer in the district by mail and by personal call should be productive of many good prospects. Some definite plan outlining the advantages of water systems, and if possible a model showing such a system in use as compared with conditions before its installation, will help to sell the prospect on the idea.

Morrison Valves

Your customers know the excellent reputation of Morrison Products and buy them readily.

Morrison Valves are specified on nearly all drawings for important contracts.

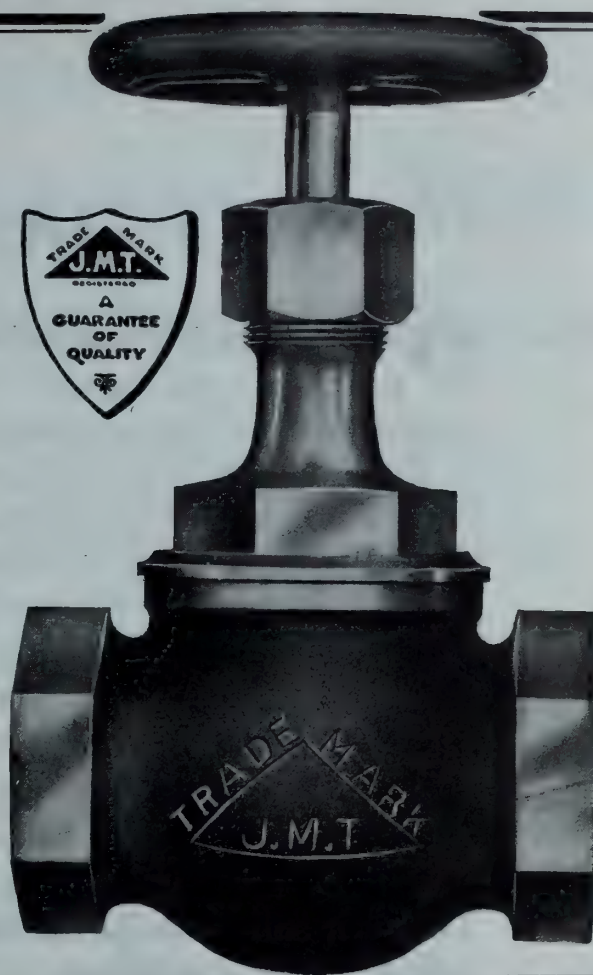
In every feature of design Morrison Valves are abreast of modern engineering progress.

These reliable fittings are made from perfect patterns, cast with the greatest skill, insuring evenly distributed material in the walls.

James Morrison Brass Mfg. Company
LIMITED

93-97 Adelaide Street West

TORONTO, ONT.



Sell *Westco* Tankless Water Systems

Running Water Badly Needed in Rural Districts—The Westco Fills the Need

Every farmer or rural resident having electricity on his farm or premises is a splendid prospect for the Westco Tankless Water System. Running water is one of the most urgent needs in the country to-day.

Farmers everywhere are demanding a good water system—and the Westco fills the need perfectly. There is big money in it for you. The field of operation is enormous. There is the whole of the vast rural areas, and suburban and outlying parts of cities and towns. It is a proposition replete with possibilities.

The Westco requires no storage tank—water is pumped direct from source of supply to taps. Entirely automatic; open tap, pump starts; close tap, pump stops.

Simple to understand, and is self-lubricating. Inexpensive to buy, maintain and operate.

No gears, no valve, no belt—only one moving part in the entire system—the impeller.

Above all—thoroughly reliable.

Westco Pumps, Limited
707 Yonge St., Toronto, Ont.

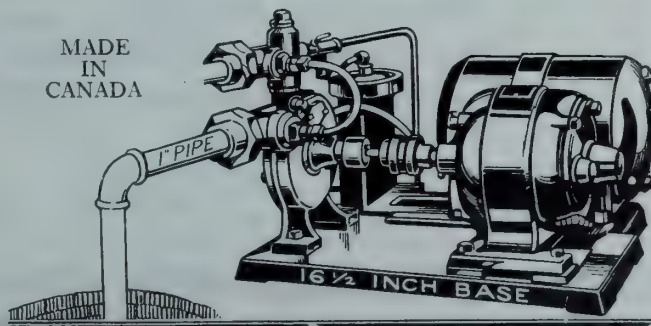


Agents Make Good Profits

Our agents are making splendid commissions. The farmer is deeply interested to begin with, and the talking points of the Westco are without number. You, too, can make good money selling this water system.

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MADE
IN
CANADA



TWO GREAT GUILDS

ONE hundred years before Columbus landed in America, there was established in England a guild of gold and silver smiths who, through pride of craft, established a mark whereby when a housewife bought silverware and saw on it the word "Sterling" she made her purchase with absolute assurance of value received.

Five centuries have passed since that mark was established. To-day it still remains an unerring guide throughout the English-speaking world, and woe betide the man or firm who misuses this mark "Sterling." The police of the world stand back of it.

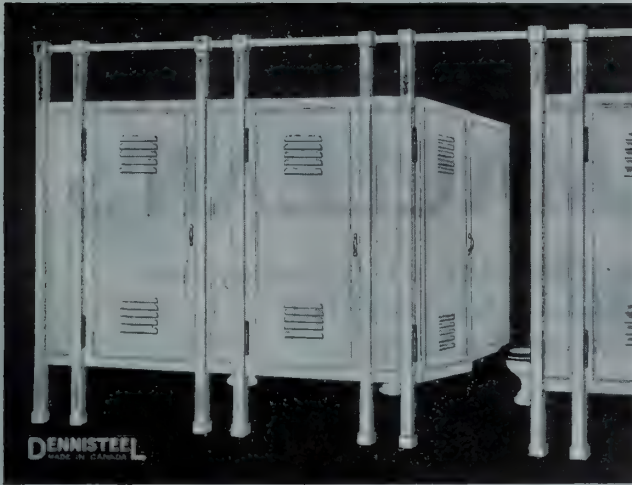
Only six short years ago there was established on the North American Continent another guild of craftsmen—another body of men with pride of achievement—the guild of Advertisers, Advertising Agents and Publishers.

They, too, adopted a hall mark to designate an honest product in the business in which they were engaged.

Sentiment, genius or instinct guided the adoption of the three great foundational letters A.B.C. as their insignia. In one respect alone did these two great guilds of craftsmen—separated in birth by over five centuries—differ. One determined the fineness alone, and left the purchaser to measure the weight. The other determined the weight but gave such specific information as would enable the buyer to determine for himself the degree to which that fineness applied to his own particular business.

A.B.C. stands for Audit Bureau of Circulations, and Audit Bureau of Circulations stands for absolute honesty in the preparation and presentation of circulation statements. The advertiser who buys space in a publication whose circulation is audited by the A.B.C. knows exactly what he is getting.

Sanitary Engineer and all MacLean Publishing Company papers are members of the A.B.C.



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The value of STEEL Lavatory Partitions in Schools,

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Premier Meighen Discusses National Issues in MACLEAN'S

The Rt. Hon. Arthur Meighen, Prime Minister of Canada, has written for January 1st MACLEAN'S a forceful exposition of his platform and policy.

HE discusses the bi-lingual issue, the tariff, reconstruction, the growing unrest and unemployment — but he avers that the tariff is the "one great issue of our domestic politics."

"Why is it the issue?" queries Mr. Meighen. "It is the issue, I think, because the enemies of the Government cannot oppose us on any other."

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"Is Mr. Crerar hedging?" the Premier inquires.

Of Mr. Mackenzie King he says: "He can be quoted on almost every conceivable side of the tariff issue."

Articles by Mr. W. L. Mackenzie King and Mr. T. A. Crerar will follow in succeeding issues.

"The Drama of Our Great Forests"

A BIG INSTALMENT IN JANUARY 1st MACLEAN'S

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Other Big Features

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By C. W. Stephens.

A romantic story of the unromantic business of making bottles.

"Money and Motion Pictures."

By John W. McKay.

A Canadian who filmed "The Miracle Man."

"The Diamond Pickers."

By Madge MacBeth.

The girl detective finds how diamonds disappear by extra-human agency.

"Foiling the 'Free Trader'."

By Kathrene and Robert Pinkerton.

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"When Toronto Grew Up"

By Col. Geo. H. Ham.

Anecdote after anecdote of the past fifty years in Toronto.

"Margot and Peter Flower."

By Mrs. "Margot" Asquith.

The commencement and course of an amazing eight years' flirtation.

Review of Reviews

Selections culled and clipped from the cream of the world's periodical literature.

"How France is Recovering"—Lovat Fraser.

"Germany Still Unrepentant"—J. Ellis Barker.

"Winston's Opinion"—Rt. Hon. Winston Churchill.

"Women Rule Films"—W. Stephens Bush.

"A Simple Solution of Labor Problems"—E. S. Howe.

"Wells on Mankind"—H. G. Wells.

"Bethmann-Hollweg Explains"—A. J. Toynbee.

"Jailing the Journalists"—Freeman's Journal.

"Forced Into Slang"—George Ade.

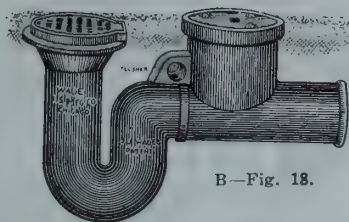
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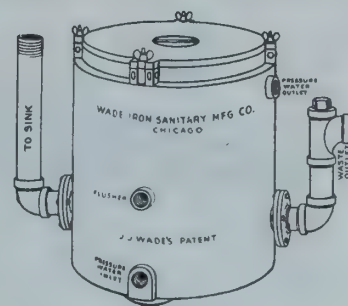
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.

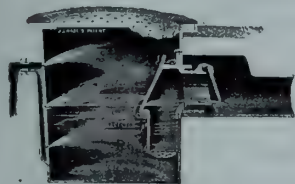
Plan on Installing WADE Up to date FITTINGS in 1920



B—Fig. 27.

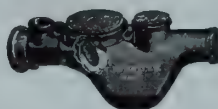
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St CHICAGO



B—Fig. 126.

Wade accessible flushing cleanout floor wash and backwater valve combination.



B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.



B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

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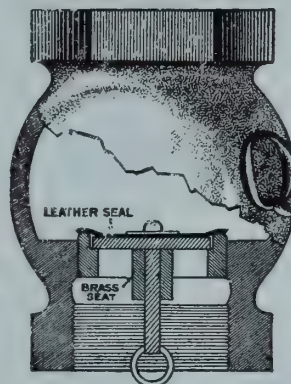
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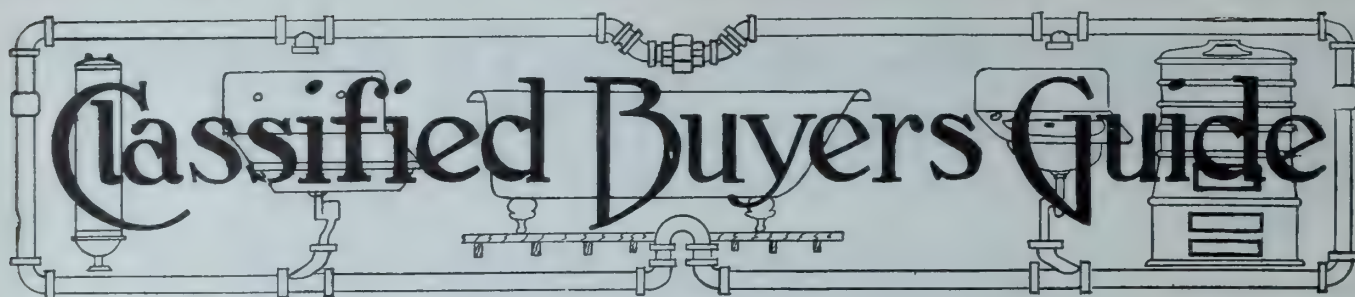
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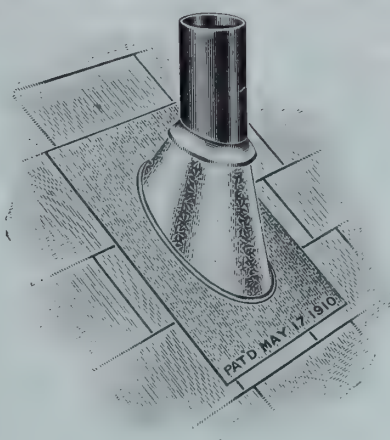
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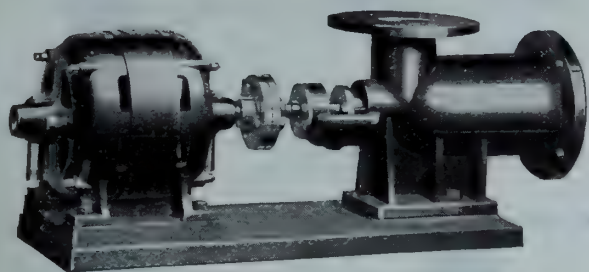
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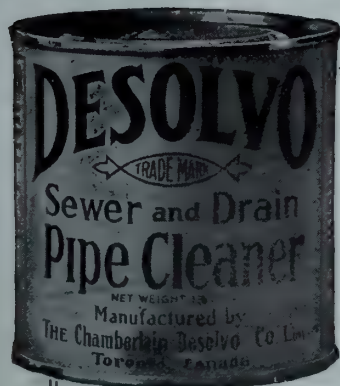
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Atlas Engineering & Machine Co., Ltd.
23 River St., Toronto



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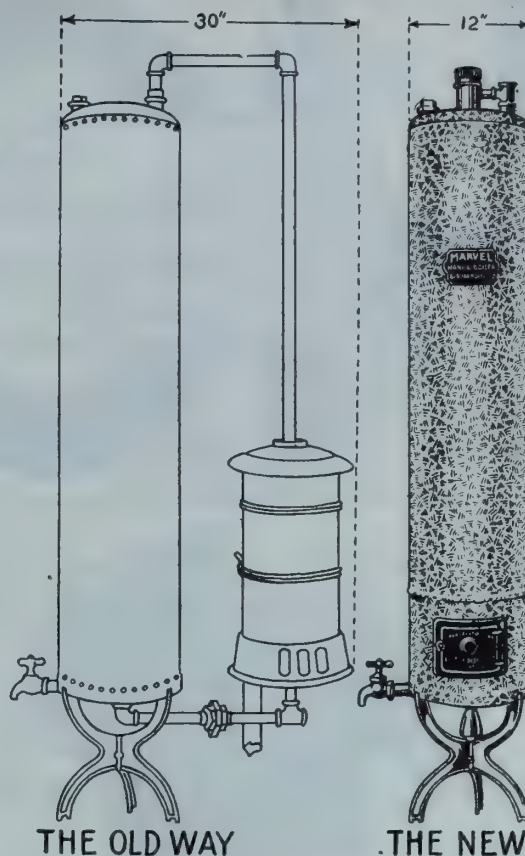
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Gas Heater and Boiler Combined

is delivered on the job completely assembled, and, with the addition of a single gas connection, is as quickly and easily installed as an ordinary range boiler.

It heats water quickly, with little gas. Is odorless, silent, safe. Brings back no complaints, avoids adjustment losses.

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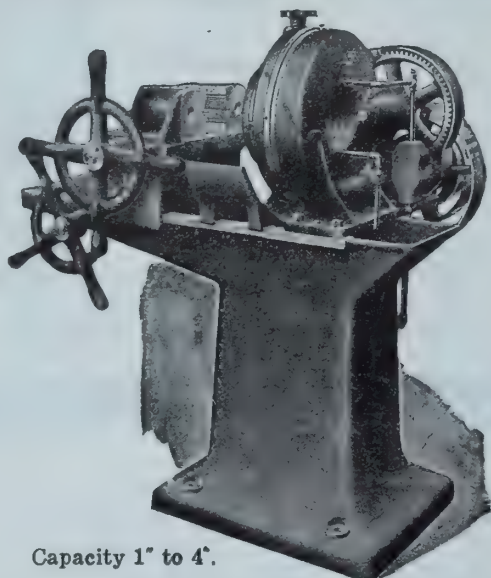
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Lead Traps and Bends Sheet Lead and Calking Lead
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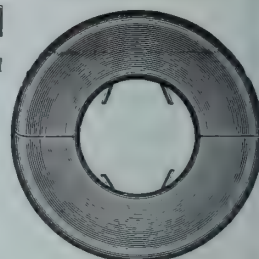
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CAST IRON SOIL PIPE AND FITTINGS

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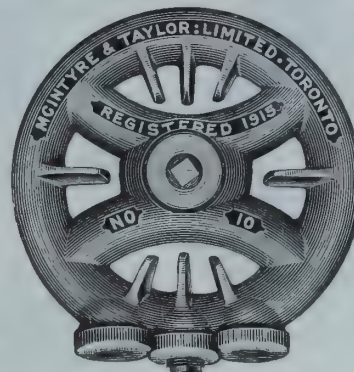
TORONTO HARDWARE MFG. CO., LIMITED

INDEX TO ADVERTISERS

Allison, K. B.	12
Amherst Foundry Co. Inside front cover	
Anthes Foundry Co. Inside back cover	
Atlas Tank Works	44
Atlas Engineering & Machine Co., Ltd.	45
Bastian-Morley, Ltd.	45
Beaton & Cadwell.....	46
Beaton & Corbin	48
Borden Canadian Co., Ltd.	45
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Iron Co.	44
Chamberlain Desolvo Co.	45
Commercial India Rubber Co.	48
Cunningham & Co., W. H.	43
Dennis Wire & Iron Goods Co.	39
Dominion Sheet Metal Corp., Ltd.	1
Dunham Co., Ltd., C. A.	3
Empire Manufacturing Co. Outside front cover	
Galt Brass Co. Back cover	
Hall & Sons, J. H.	46
Hamilton Stove & Heater Co.	48
Hause Mfg. Co., Chas. F.	48
Hotstream Heater Co.....	41
Hoyt Metal Co.	46
International Malleable Iron Co.	6
Jardine & Co., A. B.....	8
Jenkins Bros., Ltd.	8
Kerr Eng. Co., Ltd.....	6
Marks & Co.	44
McDougall & Co., R.	41
McIntyre & Taylor, Ltd.	47
Ministry of Munitions	5
Morrison Brass Mfg. Co., Ltd., Jas.	37
Mueller Mfg. Co.	35
Northwestern Chemical Co.....	48
Port Hope Sanitary Mfg. Co.	24-25
Standard Sanitary Mfg. Co.	4
Steel & Radiation, Limited	9
Toronto Hardware Mfg. Co.	46
Wade Iron & Sanitary Mfg. Co.	41
Wallaceburg Brass & Iron Mfg. Co., Ltd.	7
Warden-King, Limited	9
Westco Pumps, Ltd.	37
Williams & Co., J. H.	3
Wolverine, Ltd.	47

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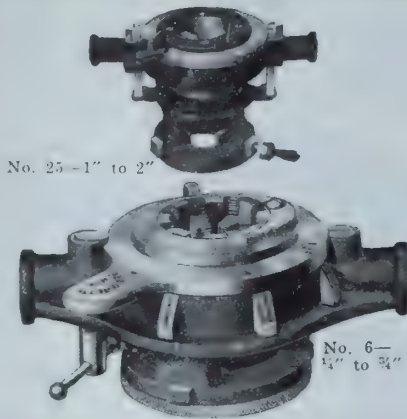
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No. 76 NELSON ST.

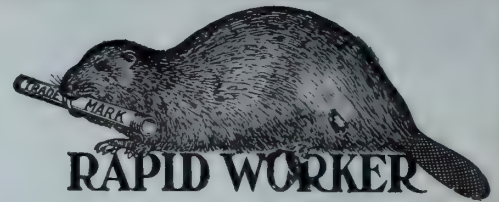
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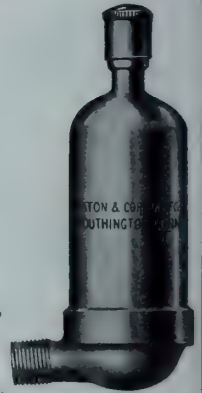
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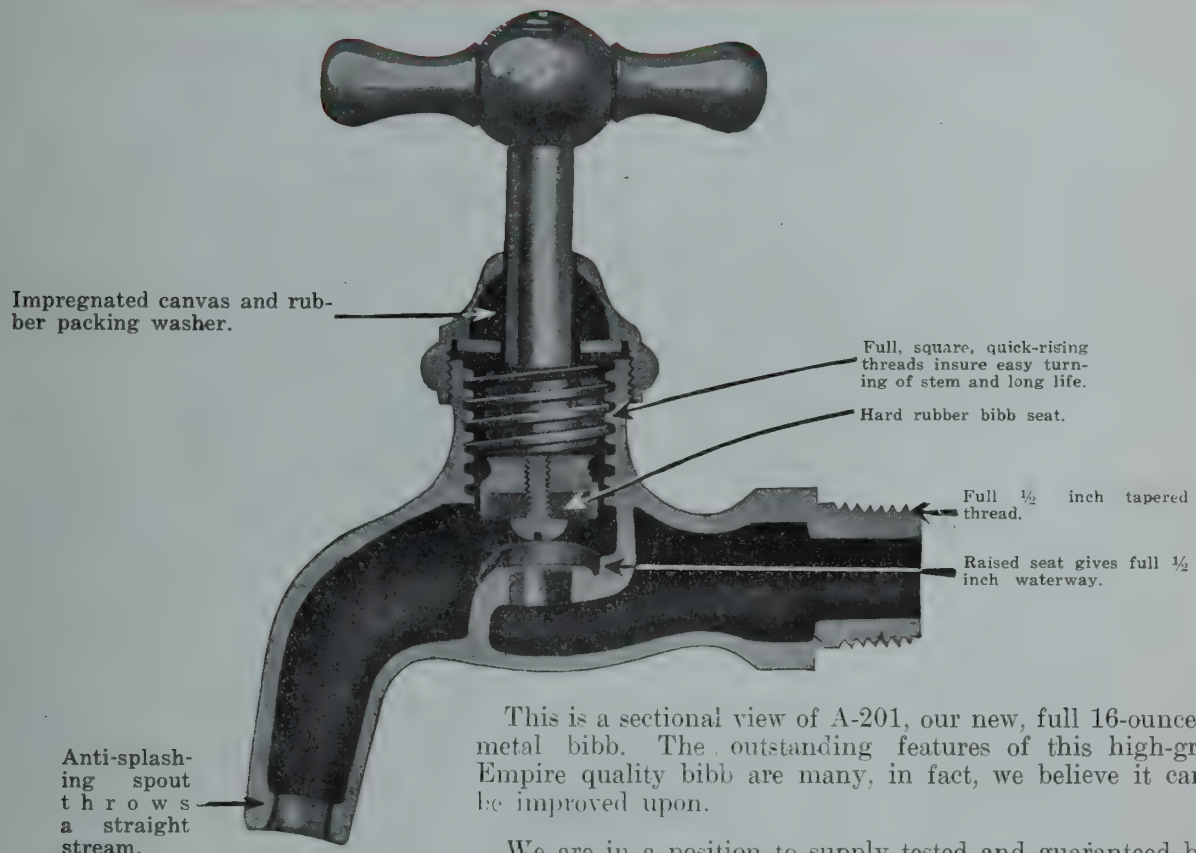
Plumber and Steamfitter of Canada

VOL. XV.

PUBLICATION OFFICE, TORONTO, JANUARY 15, 1921.

No. 2

EMPIRE Anti-Splashing Bibb



This is a sectional view of A-201, our new, full 16-ounce red metal bibb. The outstanding features of this high-grade, Empire quality bibb are many, in fact, we believe it cannot be improved upon.

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No. 294

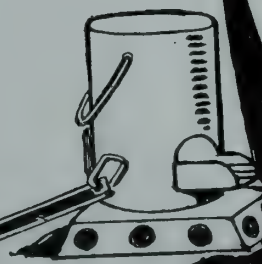
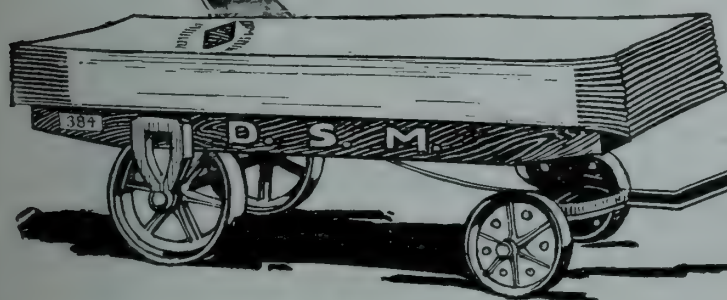
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VICTROLAS

A Little
"Straight Talk"
to the Canadian
Plumbing Trade

You will please overlook our using United States for comparisons from time to time. This is necessary, because to date no reliable statistics have been compiled on Canadian conditions with respect to the Plumbing industry.

Last year in the United States 300,000 more Phonographs than Bath Tubs were sold, 240,000 more Player Pianos than Water Closets. To apply this condition to Canada, divide by thirteen, and see the business we have missed. Temporarily, the Luxury Tax is slowing up the sale of these commodities, which gives you and me our opportunity.

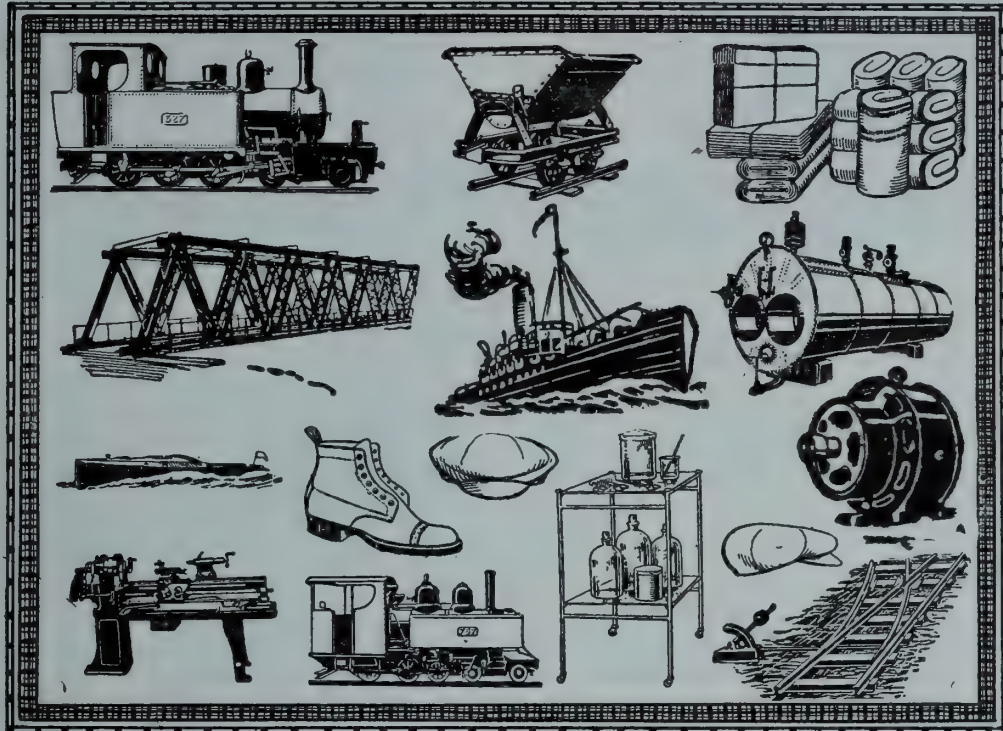
Let us help each other.

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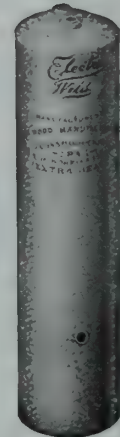
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Remember the Trade Mark



**The Electric Weld
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No Rivets—No Leaks

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*Examine
for
Yourself
how the fire
strikes
each
section
of this*

FAMOUS "DAISY"

FIRST—The arrangement of the flues is such that the fire must come into direct contact with each section. This is highly important and will be understood by the heating engineer as an excellent feature.

SECOND—The Water Post, connecting the different sections of the "Daisy" Boiler, possesses exclusive features. This places the "Daisy" in a class by itself.

THIRD—In case of accident to any section, the water post feature makes it possible to shut off the broken section and thus permits the remaining sections of boiler to be used. When convenient, a new section may be installed without the necessity of disturbing any of the piping.

FOURTH—The openings in each section of the boiler are equal, so arranged that the burning gases strike the heating surface of each section at right angles. This allows them to absorb a maximum of the passing heat before it enters the chimney.

Next time order The "DAISY" Furnace

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BRANCH OFFICE : 136 SIMCOE ST., TORONTO

Sales Built on Confidence

Morrison Gauges

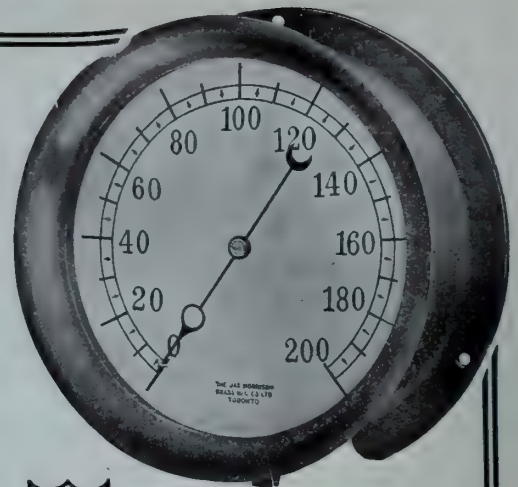
include gauges for every conceivable purpose — for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

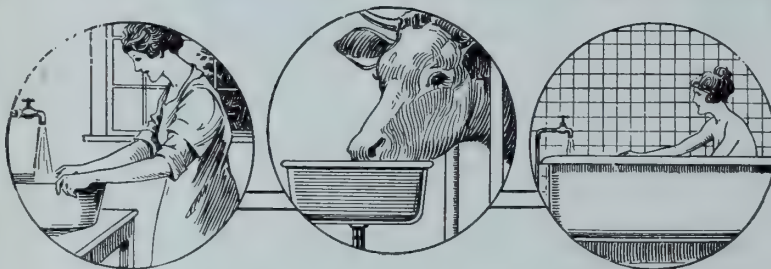
There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.

James Morrison Brass Mfg. Co., Ltd.

93-97 Adelaide Street West, Toronto



Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.



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In rural and suburban districts and on farms, the need of running water is urgent. The convenience and reliability of the Westco Tankless Water System appeals strongly to those people having electricity available.

These Westco features make strong talking and selling points:

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- (d) Is vibrationless and silent in operation.
- (e) Has no gear, no belt, no valve.
- (f) Has only one moving part, and is self-lubricating.

But Above All—Thoroughly Reliable.

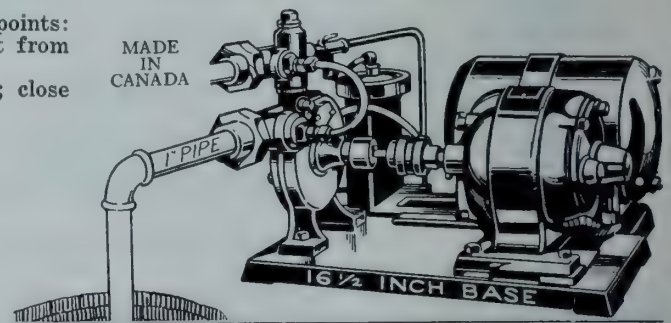
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Good Commissions for You

MADE
IN
CANADA





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A pipe wrench is the repairman's or millwright's "best friend" and when he gets a good one you couldn't buy it from him.

The GTD Pipe Wrench with its drop-forged jaw—its hardened nut, and bull-dog grip has been proved by many tests to be the strongest on the market.

A GTD Pipe Wrench with its non-slipping, hard-gripping, long-wearing jaws is an indispensable part of the tool-kit of any mechanic, repairman or millwright.

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That could not otherwise be effected



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SOME of the REASONS—

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Health is the most important factor in every home. Good health in the home depends on satisfactory sanitation, and sanitation is the plumber's business. Many homes have up-to-date sanitary equipment, but there are hundreds of homes in which new designs should be installed ac-

cording to present plumbing standards.

If we say that good health depends on perfect sanitation, then there is an unlimited amount of business where new fixtures can be sold to replace the old.

Let's not overlook this during a period in which new work is not plentiful.

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Limited

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325 Eighth Avenue West

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"MADE IN CANADA"

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, JANUARY 15, 1921

No. 2

CONTENTS

Apprenticeship System For Canada	13
Using Premise Report Card	14
Heating and Ventilating Systems	15
Practical Sheet Metal Work	16
Hints on Seasonable Advertising	17
Editorial Comment	20
Sales Letters Build Business	21
News From Here and There	22
Tenders, Contracts, Etc.	26
The Buyers' Strike	27
New Canadian Patents	29
Current Market Quotations	30-34

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and see for yourself

the Design and Finish of these modern, up-to-date Closet Tanks. The newest Tank on the market. It will please your customer. *Costs no more.*

SILENT EFFICIENT DURABLE

With this guarantee attached to every tank:

Our Guarantee

This Pussyfoot Tank is guaranteed to the extent that no matter how many years it has been in use, if a fault of material or workmanship shows, we will replace with a new tank.

The defective tank must be sent to us for inspection.

**Mr. Plumber,
Be a Sport.**

*Order one each from your jobber.
Judge for yourself.*

The Canada Metal Company

MAKERS

Toronto Montreal Winnipeg Vancouver



How I Came To Join The Shakers

By Booster Biny

Well, sir, if there was anything I used to hate, it was to shake.

That is to say a boiler—not rugs or carpets or dust cloths.

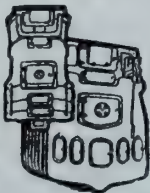
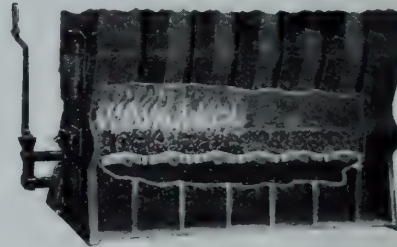
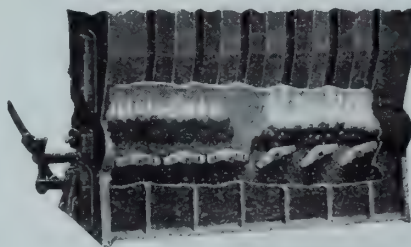
You know every time I used to shake our old home boiler, I'd forget all my religion, and come upstairs mumbling things Mother said were meant to drive mules with.

Then one day Dad swapped in that old tea kettle for a Burnham, with grates that shake half at a

time. Just naturally they shook half again as easy. So I straightway said I had joined the Shakers. After which I joined in on making the Burnham boilers.

That's my job now. That and making you see that the way we make them, is the way a boiler ought to be made; when it's made right.

One of these days you, too, will join the Burnham Shakers. I can wait, but you'll wish you hadn't.



Lord & Burnham Co. Limited
of Canada

(Boiler Department)

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TORONTO

Factory:
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No. 2

An Apprenticeship System for Canada

J. W. Bruce, International Organizer of Plumbers' and Steamfitters' Union, Outlines Suggested Apprenticeship Plan to Relieve Present Difficulty Through Shortage of Mechanics in Plumbing and Other Trades Connected With Building Industry

APPRENTICESHIP is a problem which is to-day receiving much attention at the hands of master plumbers individually and in their various organizations throughout Canada. It is recognized that unless a sufficient number of young men of good type can be drawn to the plumbing trade its future is jeopardized.

In this connection it is of interest to note that John W. Bruce, International Organizer of the Plumbers' and Steamfitters' Union, laid down an apprenticeship plan at a recent meeting of the National Joint Industrial Board of the building and allied trades in Montreal. In speaking of the plan, Mr. Bruce stated that due regard would have to be made for the climatic conditions existing and the seasonable nature of the industry. Care would also have to be taken, he said, not to overload any one industry with apprentices which the future demands of the trade could not absorb, and protection must be assured to the interests of all concerned. The following plan would, it was thought, help to relieve the present difficulty of supplying a sufficient number of mechanics in the plumbing trades:—

Report of Committee on Apprenticeship

The problem of meeting the demand for skilled mechanics in the building industry is one that merits the attention of those particularly engaged in same, in an effort to reach some conclusions as to how the situation can best be met, and with the best results for all concerned.

In seeking for some causes for the failure to secure the necessary number of boys to engage in the industry, we must recognize the lack of inducements for boys to enter the trades with any degree of assurance that they will receive the necessary instruction that will aid them in becoming proficient mechanics; the neglect of the avenues of education along technical lines; the intermittent nature of the employment offered many boys without any due regard for their welfare; the desire of some employers to use boys during rush period only. The general lack of interest on the part of employer and employee and the consequent lack of knowledge, with no real opportunity for a boy to acquire the training so essential to make a good mechanic, have been some of the chief causes for our failure in the past to meet the situation, and therefore we are suffering

to-day because we have not held out those inducements that are so necessary to encourage boys to enter the various branches of the building industry.

The general conditions arising out of the war, due to the serious wastage of our man power, have now forced the matter to our attention, so much so that we are conscious that this vital matter has been sadly neglected, and if we are to have any relief and bring about a condition that will aim to fulfil the requirements of the industry, we must meet the situation with proposals that will at least lay down new principles based on a solid foundation, to meet the needs of the industry in the future.

We are conscious that we will meet with many objections, and experience many difficulties in attempting to solve the problem. But if we are anxious and willing, and desire to succeed, it will need the hearty co-operation of those who realize the seriousness of the problem, and the necessity of trying to adjust it. So we must be prepared to launch a scheme that can at least merit the support of the present organizations in the building industry.

Must Protect All Interests

In outlining any plan due regard will have to be made for the climatic conditions existing, the seasonal nature of the industry, and protection will have to be afforded boys entering into apprenticeship. It is useless from our standpoint and a waste of time and energy, also a serious economic loss to the community to overload the industry with apprentices, which the future demands of the trade will not absorb, and any proposition advocated shall be within the bounds of safety, assuring protection to the interests of all concerned.

The various schemes in operation in a number of trades, as applied to given localities, are producing good results, and their unification and extension may materially help in devising ways and means to meet the situation. But as a means of placing the question outside the realm of partisanship, and remove the feeling that the claims of the individual organization or trade are dominating factors, we must consider the propositions in a new light by first considering the essential points necessary, and try and solve the problem on a national basis, and one that will meet the demands of the industry.

It appears now that our hopes of meeting the situation lie in a revival of a well-established and defined apprenticeship system; with a very definite objective, under the supervision and joint control of our respective organizations.

National Apprenticeship Council

1. There shall be established a representative body from within the organizations of the building industry charged with the advisory and supervisory functions as set out below. This body to be known as the National Apprenticeship Council of the building industry.

2. The National Apprenticeship Council shall consist of—

- (a) One employer for each branch of the building trade.
- (b) One journeyman from each branch of the building trade.
- (c) Two architects and two industrial engineers.

Who shall be members of their respective organizations and parties to the rules governing the Council.

3. The Apprenticeship Council shall have the power to make such regulations for the conduct of the Council and the appointment of such officers as they from time to time determine.

4. Local councils shall be formed under the authority of the National Council, with power to carry out the rules and objects of the Council as hereinafter set forth.

5. Local councils shall be constituted on the same basis as the National Council, but shall have power to modify the number if in their judgment it is desirable.

6. The National Council shall issue forms of indenture for each trade to be used exclusively by all employers parties to this scheme and apprentices availing themselves of its operation.

7. The boys shall be apprentices to the employer, and the employer shall undertake to give every apprentice the fullest opportunity of efficiently learning the trade—

- (a) In the workshop and on the job.
- (b) By attendance at a technical school for about one-sixth of his time, or not less than two half days each week during the employers' time and without deduction from wages.
- (c) The apprentice shall be bound to attend an evening course at least two evenings each week during school terms.

8. The council shall assume responsibility with the employer for providing appropriate facilities for the apprentice to learn all branches of his trade, and to this end shall become party to the indenture. The responsibility is, however, subject to the right of the council to dissolve the apprenticeship in case of serious default on the part of either parties.

9. The local apprenticeship council shall prescribe the terms and conditions of apprenticeship to the various trades in each area, subject to the approval of

Using Premise Report Card

Report Shows Condition of Fixtures in Every House Worked in—Number Each Piece of Literature—Big Returns in Six Months

EVERY enthusiastic supporter of T. E. B.'s method of co-operation and interchange of ideas submits the following plan for the consideration of the trade.

This man was one of the first contractors to use the T. E. B. premise report card. Up to date he has compiled information from these report cards that is worth thousands of dollars to his business.

The thought occurred to this contractor that there was an immediate use for the report card, in connection with the bill for the work done, aside from that of acting as a guide for circular sales letters. Of course, he could send literature at any time covering new fixtures to replace those that were reported as out of date or defective, etc. To accomplish this he worked out the following plan:

The Plan

Every time a journeyman is sent out to repair a job, he makes a premise report card showing the condition of every fixture in the house. He also makes a note of any appliance or fixture that might be sold in addition to those already installed. This report is handed to the bookkeeper with the charge sheet. The bookkeeper, when entering the charge in the books, makes a note—directly under the charge—of the kind of literature that should go to the customer with the bill. When the stenographer makes out the bill, she encloses the literature thus indicated in the envelope with the bill.

As an example, if the job in question

was the repairing of a range boiler, literature describing a combination boiler and gas heater, or other similar literature, is enclosed with the bill.

The contractor's reason for this is that this range boiler is on its last legs. The journeyman has told the customer that the repair he has made may not prove satisfactory and may not last for the reason that the boiler is decayed, and is likely to spring a leak at any time.

Therefore, by immediately starting a campaign to sell the customer a new appliance of some kind, the literature reaches the customer while in a receptive mood. More than this, the occasion offers an excellent opportunity of obtaining valuable results from advertising pamphlets furnished free by manufacturers.

Literature Numbered

To go with this plan he has developed a chart that shows at a glance the kind of literature that should be sent to each prospect in cases of this kind. To simplify the work, he has assigned a number to each piece of literature sent him by manufacturers, and has constructed a cabinet over his stenographer's desk with a pigeon hole for each circular. These pigeon holes are numbered and indicate the number of the circular. His chart is devised in the following way:

Repairing range boilers—enclose circulars 17-28-39.

Repairing water closets—enclose circulars 28-45-106.

Repairing sink faucets—enclose circulars 6-18-36.

Continued on page 28

the National Council. It shall determine the period of apprenticeship, the rate of wages to be paid, the hours of labor, the working conditions, and all other matters relating to the training of apprentices.

10. The local council shall arrange, where possible, with the local authorities for classes for apprentices, and make arrangements for the hours and period during which apprentices shall attend.

11. Local councils can, for cause, cancel indentures when considered desirable, or arrange for the permanent transfer of an apprentice from one employer to another.

12. An examination board of not less than three members shall be appointed by the council and shall conduct the examinations for apprentices at stated periods.

13. The local council shall determine the number of apprentices which may be necessary in their own area to maintain the efficiency, due regard being given to the possibilities for the future expansion or contraction, and it shall regulate

the admission of apprentices to the various trades in accordance with these conditions, and subject to the trade agreements existing between the employer and employees.

14. In order that apprentices working under the direction and supervision of the council may have the best opportunity of obtaining a wider knowledge of their respective trades, it shall be open to the council by agreement with the employers to arrange for short periods of transfer or exchange of apprentices where it appears that by such transfer the apprentice shall acquire special knowledge or experience.

15. All complaints or disputes arising between employers and apprentices which cannot be settled between the parties in regard to the conditions or work, discipline, wages, or other matters, shall be referred to the local council, who shall have power to adjust such disputes, which shall be binding on all parties, subject, however, to appeal to the National Council.

Heating and Ventilating

Combination Heating Systems

First article of an important series written exclusively for Sanitary Engineer by
N. A. Kearns

THE accompanying drawing shows, in a general way, the various parts of a combined warm-air and hot-water system of heating. "A" is the hot-air furnace, which in principle is simply a stove incased in iron or brick. The cold air enters the chamber, formed between the casing and the furnace; passes over the heating surface of the furnace, and thence into the distributing pipes.

The casing, which is here one made of galvanized iron, is indicated by the letter E. The fire-pot is indicated by the letter B, the ash pit by C, the combustion chamber by Z, and the radiators by D.

The letter G indicates a warm air leader, which conveys warm air to the registers I and I. The register on the upper floor receives the warm air from the wall stack H.

A return cold air face is shown at L. This face allows the cold air to return to the joist lining K. From here the cold air passes to the return pipe J and thence into the heater chamber.

It will be noted that there is an outside air supply face provided. This is shown at M.

The cold-air return face at L is fitted with an alternating valve, set so that when the outdoor supply of cold air is passing through the joist lining the opening at L will be closed. This valve also closes the passage against outdoor air when the supply is to be taken from the room.

Combination Boiler

The combination boiler is shown just above the fire-pot, at F. The water heated in this boiler passes to the cast-iron radiator by way of the supply pipe O. This radiator is shown at N. W is a quick opening valve. V is a wood-wheel air-vent.

The water returns from the radiator to the boiler by way of pipe P.

The expansion tank R is connected to the return pipe P by means of the "expansion pipe" Q.

The vent pipe, at the expansion tank, is indicated at G. The overflow pipe T is to be carried to some convenient drain within the house.

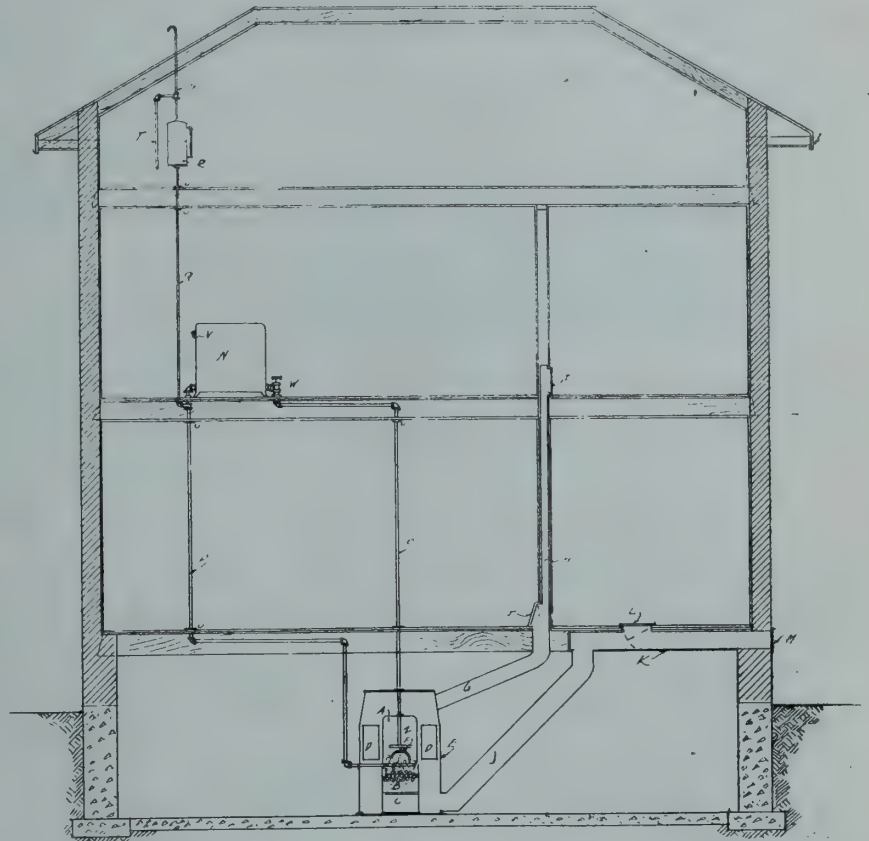
Floor and ceiling plates are shown at U.

Later on, when we take up the re-

quirements of a proper combination system of heating we may specify certain details which are not frequently found in systems of this type, and in doing so we wish to direct the reader's attention to the fact that combination systems have much to recommend them apart

furnace installation: A furnace is set up in a basement where the floor is of earth. This furnace rests on a few bricks, and no attempt has been made to close the joints of those bricks against ground air. Crossing under the furnace there is a tile sewer pipe. This pipe is, no doubt, broken; the smell of sewer gas is forever present when the furnace is in operation.

One dinkey cold air register is set in the hall. This cold air register connects to the furnace-casing by way of joist-



from their relative low cost when compared with all-hot-water or all-steam heating systems.

We do not suppose that there is one man in the heating trade who does not realize that warm-air heating plants have received a great deal of condemnation because of the "cheap" installations that were at one time the rule rather than the exception. In fact, there is hardly a town in the country where some horrible example of a "skinned" job can not be found.

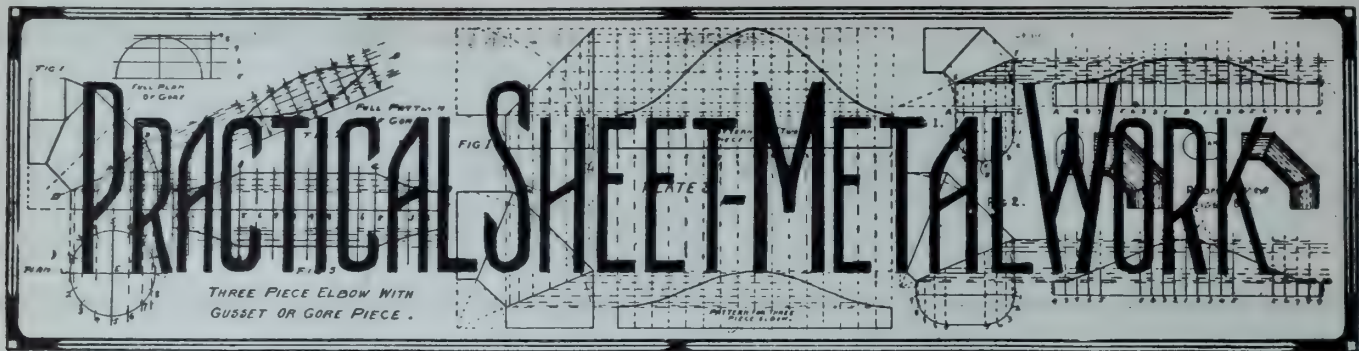
A "Skinned" Installation

Here is a common "skinned" type of

lining and a small cold-air pipe. The area of the cold-air pipe is about one-half of the combined areas of the warm-air leaders; but, even at that, its area is much greater than the effective area between the joists, the space concealed by the joist lining being reduced by the cross-bridging of the joists.

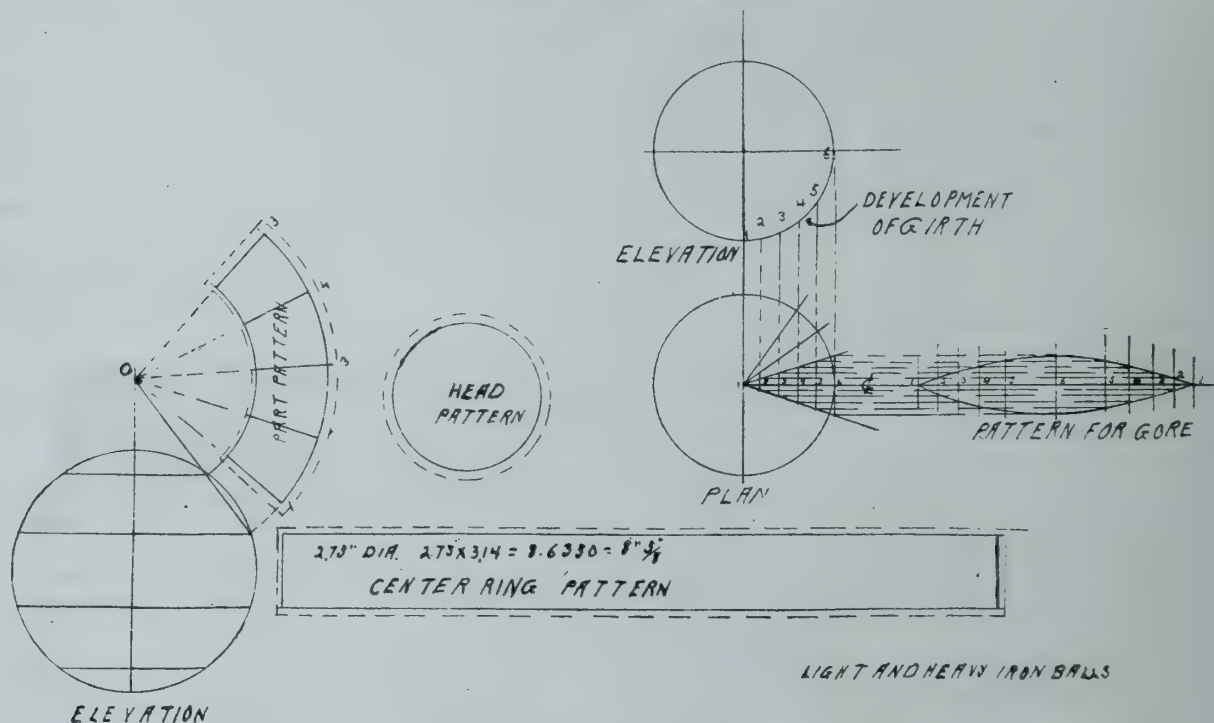
No argument will convince the owner of such a plant that a properly installed warm-air heating system will give any satisfaction. He will refuse to believe that, within certain limitations, there is no system of heating residences that is

Continued on page 18



PATTERNS FOR SPHERES

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.



LIGHT AND HEAVY IRON BALLS

WHEN a workman makes a sphere it often puzzles him which method to apply; the zone method or the gore method.

The zone method is the most suitable for all around work. It is easier to assemble, quicker, and is considerably stronger.

The gore method is generally made in so many pieces, that it is hard to put the curvature in the pieces, and this also helps to elongate the sphere from pole to pole, rather than absolutely round.

To set out the belt method, first draw the elevation and divide the body up so the middle belt will be a straight strip.

The other flaring belts are made the same as a funnel or any true flaring article and is described from o in this case. The dished top is set out equal to the radius of the slant height.

These belts must be bumped out to conform to the curvature of outline of elevation. A little edge is allowed; but lines are described so the belts can be held straight.

The circumference of the middle belt is made equal to the diameter of sphere times 3.1416, and is 8. 5.8 inches in this case.

The second belt is made to conform to this girth, and,

after the belts are shaped up, it is often necessary to take up a bit of girth or layout one or the other belts a bit.

This is done so a snug fit is produced, and no buckles are forced in the one edge.

The gore method is very simple, a quarter of the elevation is divided in equal spaces and lines are dropped to the centre line of plan.

The mitre lines in plan are set apart at such widths as you desire.

That is, the ball is divided in say 12 equal parts, then one part would be straddled over the centre line of plan, and this is the gore.

From elevation drop lines to cut these mitre lines as shown. Then pick the girth from 1-6 of elevation and set it off as 1-1 in pattern.

Draw stretchout lines, and from each point in mitre lines project lines to intersect those of similar number in stretchout.

Trace a line through these points and the gore is finished. A small lap is allowed for soldering. Each gore is bumped to suit the curvature of ball.

Enough of these patterns are cut to make the ball, and all are bumped out, rounded out, and the gores are then assembled.

Hints on Seasonable Advertising

The reproduction of some sample advertisements herewith will give some idea of the lines being advertised by others in the trade in all parts of Canada, and will impart some ideas or suggestions which others may incorporate in their local advertising.

A NNOUNCING important plumbing and heating work done locally as the basis of the plumber's advertisement in the newspaper, is a plan which has been followed by some of the most progressive men in the trade. Young & Dunn, Dartmouth, N.S., follow this plan in a recent advertisement, which reads: "The plumbing and heating of the new Emmanuel Church was done by us. These are two of the most important factors in any building. The heating must be right to give the proper

times larger than those from the ears to the brain. Therefore when possible use a picture instead of words, and make the words mere connectives for the picture.

2. Confine the attention of the exact subject by drawing outlines and putting in the divisions; to make certain that all will think about the same thing.

3. Aim for dramatic effects—study them out beforehand. This holds attention.

4. Red is the best color to attract and hold attention, use plenty of it.

5. Use few words, short sentences, small words—big ideas.

6. Tell why, as well as how.

7. Don't be afraid of big type, and don't put too much on one page.

8. Don't crowd ideas. No advertisement is big enough for two ideas.

9. Before you try to convince anyone else, make sure you are convinced. If you cannot convince yourself, drop

Faulty Plumbing Is Costly No Matter How Low the Price

Our plumbing is being built up on a "Quality First" basis, and we intend that every job executed by us will be up to that standard, whether that job be merely some small repair work or the installation of a complete new bathroom outfit.

IF YOU ARE GOING TO BUILD

We will be pleased to quote you a price on the total fixtures you will require and the cost of their installation.

Gas and Steam Fitting Furnaces supplied & installed

Sanitary Plumbing & Heating Co.

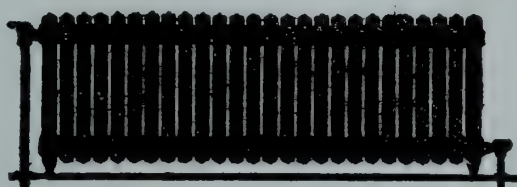
PHONE 450

P. O. Box 101

*Ad. by Sanitary Plumbing & Heating Co.,
Yorkton, Sask.*

degree of heat in every section of the building. And the plumbing work must be sanitary and properly installed. When you have heating and plumbing work it will be to your advantage to consult us, because we have had years of experience and our staff are all experienced men."

The advantages of this form of advertising lie in the fact that there is a news item involving a prominent local building, about which everyone has heard. When the



Greater Heating-Comfort Per Ton of Coal Used

THERE is a way of getting the most heat out of the fuel you use. We have the means of putting the heat where you want it and when you want it.

The Dunham Heating Service by application of the Dunham Radiator Trap gets rid of air and water, dispenses with noisy, annoying air valves on the radiator and allows easy flow of heat-giving vapor to the radiator.

The advantages of Dunham Heating are many.

Without obligating you in any way we will gladly tell you how best to correct your heating troubles or give you an estimate on your new heating plant.

R. CHESTNUT & SONS

Plumbing Department

Phoenix Square

Ad. by R. Chestnut & Sons, Fredericton, N.B.

the subject. Don't try to "put over" anything.

10. Tell the truth.

* * *

There are many good suggestions contained in this statement which plumbers can keep in mind when planning their advertising.

* * *

"The Trump of Doom," says an ad. by Shea's Plumbing Shop, Fredericton, N.B., "will sound no louder than that old wornout closet does to the startled ears of your guests who use your bathroom. End this embarrassment for your family and your guests. A — water closet will do this at a cost which is small compared to the satisfaction and comfort it brings."

It is wise in all newspaper advertising to have some definite basis for the ad. and avoid general statements as much as possible. A little study of the plumbing requirements of the home will soon reveal many points which will form the basis of an ad. which will hit home hard to the minds of all who read it. Few people have not ex-

Bathroom Fixtures and HEATING SYSTEMS

We are also well equipped to serve you with goods to meet the needs of certain homes. Perhaps it is the article you have been looking for, for your home: Galvanized cisterns; Out door tanks, all sizes; Oil wagon tanks, Eastern and well pumps. White enamel steel or cast sinks. Arnie Oil burner can be fitted in any range or stove. Anything made to order in the metal line.

McLary, Hecla and New Idea Furnaces Hot water and
Steel and Cast Radiation.

CORNWALL & BLOCK

Tinsmiths & Plumbers

Phone 90

Ad. by Cornwall & Block, Minnedosa, Man.

reader's interest has thus been secured the advertisement carries a message which bears a good recommendation of the quality of this firm's work.

* * *

The use of clear cut illustrations of up-to-date bathroom fixtures is used by many dealers and there is no doubt of the value of this plan. In this connection a prominent man in the trade makes the following rules as best to follow in planning local advertising:

* * *

1. The nerves from the eyes to the brain are many

perienced the embarrassment such as is mentioned in this ad., and perhaps many have postponed action until a later date and then forgotten to have the trouble remedied. A general advertisement would mean little to such a prospect, but a direct statement such as this will be found to find a few who have been postponing necessary work and to those it will serve as an effective reminder.

* * *

The seasonable appeal is always a strong one with plumbing fixtures. Now that the cold weather is approaching is time to have plumbing work attended to. J. T. Simms, plumber, of St. Marys, Ont., used this as the

Down in the Cellar

Is where SANITARY PLUMBING should begin. The sewage and other pipes should be absolutely air-tight at the joints, the grade so arranged so as to provide a quick outflow. We are skilled at that kind of work. No home where we have done such work has been or ever will be "gassed." Our plumbing work is sewer gas proof.

HENRY E. WHITE & Co

Plumbers and Electricians,
250 COLBORNE ST. Phone Bell 531



Ad. by Henry E. White & Co., Brantford, Ont.

basis of a small advertisement, which states: "We would like to remind you that this is the proper time to have your heating apparatus put in good shape for winter. Plumbing, as it should be done, is the kind of plumbing we do."

* * *

Another good type of advertisement is that used by Barr & Anderson, Ltd., Vancouver, B.C., which deals with a number of different points. It reads as follows:

"Plumbing, when it's a matter of plumbing in a big way, we believe we stand supreme in Western Canada. Hospitals, apartment houses, business blocks, public buildings, the plumbing of buildings like these throughout British Columbia stand as monuments to the efficiency of our work. And there's another point—no job is too small, either, for us to give it our very best care and workmanship."

Here is an effective appeal for plumbing work, both large and small, and backing up the claim of a share of such work with the statement, above referred to, dealing with work already done on well-known buildings.

* * *

"Twenty-eight years of practical experience installing

plumbing and heating systems, coupled with a staff of competent mechanics, places us in a position to give you the very best job it is possible to secure," says an ad. by Vagg, Wilson & Co., Regina. This firm makes use of the argument of long and satisfactory service as its reason for claiming its share of local plumbing business.

* * *

An invitation to come in and inspect a domestic water supply and sewage system is embraced in an advertisement by Jos. W. Chambers, Wolseley, Sask.

Plumbers in rural districts have a very fertile field for the development of sales of water systems, electric light

Teach Your Dollars To Have More Cents.

Increase the purchasing power of the money you spend for fuel to warm your home. There are many ways in which fuel may be wasted. By examining your furnace or heating plants we can tell you whether it is wasteful or economical. This you ought to know.

Young Plumbing Co., Ltd.

M2869
M5780

HEATING ENGINEERS,
615 FIRST STREET EAST, CALGARY

*Ad. by Young Plumbing Co., Ltd.
Calgary, Alta.*

systems and sewage disposal systems and right now is a good time to gather in such trade for farmers have harvested a bountiful crop, they have a little leisure on their hands and a little judicious sales talk will convince them that their machinery of production cannot stand the strain year after year without some attention. These modern systems will also help to make the farm more productive, as well as improving the standard of farm life. Arranging a display in the store with the use of model buildings and getting those interested to the store to view such a display, is a good way of arousing interest in such lines.

John Lewis Co., Ltd., Belleville, Ont., runs a series of advertisements with a sketch entitled, "Take a Tip from Torchy." The subject of one of the latest of these ads. is radiators. The ad. says, "Nothing will your comfort mar if your plumbing's up to par." "A radiator that's in good working order radiates good health and good fellowship. Promote the get together spirit in your family circle, always remembering that comfort is the tie that binds."

This is a good subject for ads. at this season of the year and an important point is that dealing with comfort in the home during the cold weather.

COMBINATION HEATING SYSTEMS

Continued from page 15.

in any way superior to that of the warm-air furnace.

Defect of Overheating the Air

With many installations there are certain defects to which we must give some consideration. There is the defect of the overheating of the air; the vitiation of the air by the escape of gas through open joints; and last, but by no means least, the imperfect distribution of the heat.

The overheating of the air may be avoided by the use of a furnace with sufficient heating surface in proportion to its grate area. With a furnace of this type there will never be the necessity of driving the fire so hard that the joints will open and permit gas to escape into the house.

The imperfect distribution of the heat may be overcome by careful location and

proper proportionings of the registers and pipes.

However, there may be circumstances preventing warm air reaching certain rooms, and it then becomes necessary to provide auxiliary heating surfaces for certain rooms that are at some distance from the furnace. Hence the combination of warm-air and hot-water.

The Furnace

Because the greater part of the heating effect of the combination system must come by way of warm air, we must take up some of the principles of warm-air heating before referring to the details of the hot-water part of the apparatus.

In our general description we referred to the cold air entering at the bottom of the heating chamber and then passing on to the distributing ducts.

It is the free passage of the air over the radiating surfaces of the furnace

which is the means of conveying the heat from the fire to the rooms.

The outer surfaces of the fire-pot, radiators and combustion chamber form the radiating surfaces of the apparatus.

Although these surfaces are termed radiating surfaces it should be remembered that the heating is not effected by radiation. The heating is entirely by means of connection.

If the heating surface is not of sufficient area the air will be overheated before it enters the rooms. This surface should be of sufficient area to cool the hot gases to a temperature within 100 degrees of the temperature of the air in the warm-air leaders.

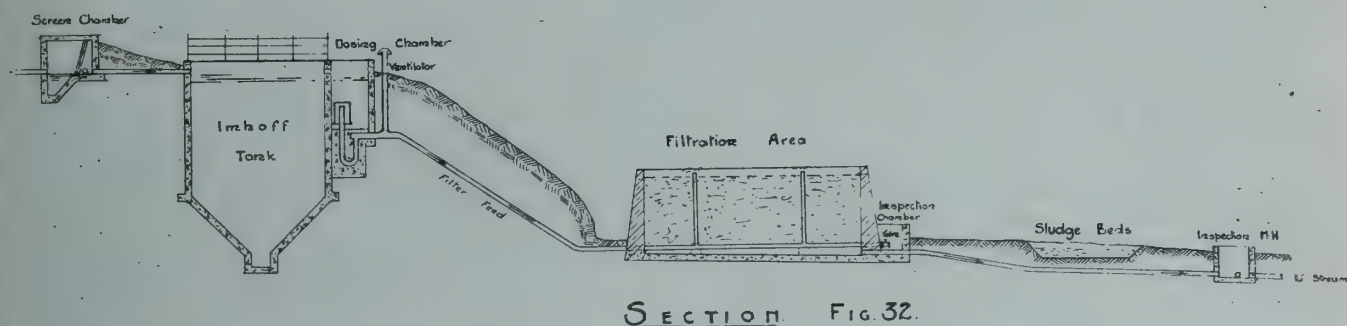
Ratio of Heating Surface to Grate Area

In many furnaces the ratio of heating surface to grate area is not enough. It should be somewhere about fifty to one. This ratio, however, can not be constant,

Continued on page 28

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied



SECTION FIG. 32.

Article No. 24 of the Series—Illustration No. 32

(Continued from last issue)

Fig. 32 illustrates a combined single chamber septic tank and artificial filtration bed, suitable for a large mansion where the adjoining land cannot be utilized for filtration purposes. The septic tank is similar to those previously described having concrete baffle walls protecting the inlet and outlet openings. Current breakers constructed of wood can be placed below the inlet baffle wall to break the velocity of the incoming sewage and prevent disturbance of the deposited sludge, if considered necessary, by nailing same to the wooden plugs built in the concrete walls.

The liquefying septic tank has many advantages over the sedimentation tank owing to the decomposition of part of the sludge which is a great saving in cleansing operations. Still the clarified effluent from a liquefying tank is very much more offensive and stronger, thus it places more work on the oxidizing filtration area caused through its longer contact with the decomposing sludge compounds during the process of purification so that whilst the septic tank reduces to a certain extent one of the greatest evils

in sewage disposal—namely the sludge problem—yet again the clarified effluent from a settling tank does not require the same amount of treatments as that from a liquefying tank, but until some other more economical system is adopted for the destruction of sludge, there is little room for doubt that the best and cheapest form of tank installation for small communities is either a well-designed liquefying tank or modified type of same.

The longer sewage can be detained in the tank the greater the destruction of organic matter and the less offensive will be the sludge, so that in practice a limit must be drawn for economical construction on the tank accommodation.

In designing septic tanks suitable for large buildings the constructional design can follow those previously illustrated for private houses except the sizes should be increased (which must be governed by the number of persons this installation has to accommodate).

EDITORIAL COMMENT

BRIEFS

ALDERMAN F. R. MAXWELL, of Toronto, who is also president of the Canadian Society of D.S & H.E., has been appointed chairman of the local board of health. If more capable sanitary engineers were members of local boards of health it would be greatly in the interests of improved sanitary legislation.

ONE of the best ways to increase the scope and importance of the plumbing trade in Canada is for operators to make practical use of some of the suggestions outlined in this and other issues of Sanitary Engineer. Look over the articles on use of sales letters, use of premise report cards in this issue. Every issue contains a number of such articles based on other plumbers' experiences.

AN APPRENTICESHIP SYSTEM FOR CANADA

ONE of the surest ways of placing the plumbing business of the future on a higher level, the end to which master plumbers of to-day are striving, is to give the apprentices of to-day, who will be the master plumbers of to-morrow, the utmost assistance. The apprenticeship problem has assumed serious proportions in the plumbing trades in recent years owing to the fact that this particular trade failed to attract the right type of young men. The result has been a marked shortage of such help, a shortage which would have been accentuated had the building industry not become practically inactive. Master plumbers, through their organizations, have taken some steps toward solving the problem by taking hold of the material in hand and making it necessary for apprentices to attend a certain number of technical school classes in order to secure the valuable technical knowledge of which many of the plumbers of to-day were deprived. This action is to be highly commended, and the results of such instruction have been quite apparent, but concerted action among all the trades interested in the problem has been lacking.

It is in this latter connection that the report of J. W. Bruce, International Organizer of the Plumbers' and Steamfitters' Union, advocating a National Apprenticeship Council including all

branches of the building trades, is of interest and importance. The application of this plan will insure that the interests of employer, journeyman, architect, engineer and apprentice, will be well looked after. The responsibility is placed on the employer for giving the apprentice every opportunity of learning every detail of the business and for seeing that he attends, both during the employer's time and at night, a school of instruction. Full authority is vested in the National Council for seeing that such terms are carried out and the Council assumes responsibility with the employer for providing appropriate facilities for the apprentice to learn the trade. Members of the Council will conduct examinations.

As a whole, the report of the apprenticeship committee covers all phases of the problem in a very thorough manner, and its application should solve many of the difficulties involved.

AN OUTSIDER SPEAKS OF PLUMBING

WHAT is perhaps one of the most important phases of educational work recommended to plumbers is that having to do with improving relations between the craft and the public as a class. In this connection it is refreshing to read the address made by a university professor before a recent meeting of master plumbers in which he states that the plumbers' charges are not excessive compared with other necessities, and that our forefathers would gladly have paid ten times to-day's costs for such facilities to improve the comfort, health and cleanliness of their times. In order to discourage the common idea that all plumbers' charges are excessive, it is advised that the plumber have enough facts at his disposal that would combat any critic. The plumber can also take credit for his share in the development of plumbing in the past fifty years, pointing out that whereas bathrooms and radiator heating were only in the homes of the wealthy these facilities are now provided for everyone of ordinary means. The nature of the service rendered, period of service (plumbing styles do not vary as do some other commodities) and the cost and maintenance of his equipment and work in every home, are suggested as good points on which the plumber can base his educational efforts.

Sales Letters Build Plumbing Business

Keep Record of Letters Sent—Five or Six Typed Letters a Day
Better Than Lot of Printed Circulars—Some Letter Suggestions

IT would appear that a large number of plumbing and heating contractors are bothered by a misunderstanding about how, when and in what quantity circular sales letters will prove economical and effective business getters.

There seems to be a very general impression that it is not worth while to bother with sales letters except under circumstances where they are sent out in considerable quantity. Nothing could be further from the right idea than this, according to a report by the U. S. Trade Extension Bureau. As a matter of fact, the average, usual plumbing and heating establishment is unlikely to have a list of prospects so large as to require quantity production of these form letters.

In the ordinary case a contractor will have the names of, say, a couple of dozen people who are prospects for new bath room installations; the names of twenty-five or thirty who are prospects for extension or improvement of heating equipment; the names of fifteen or

twenty who are prospects for farm water systems; and a similar number of names in each case as prospects for other equipment, fixtures or service.

The plumbing and heating contractor who finds himself in the situation just mentioned with reference to his list of prospects, will, quite evidently, have no use whatever for the number of form letters that would justify having them printed or otherwise made up in quantity. On the other hand, it is almost absolutely certain that his stenographer or office assistant would have ample time in which to send out, daily, at least five or six of these sales letters, to that number of the contractor's various prospects. There would seem to be no good reason in the world why a contractor so situated should fail to take advantage of this opportunity for building business, either immediate or future.

Keep Record of Letters

The only information required in any case for the sending of circular sales letters is to know who is likely to be a

prospect for some particular thing, and to see that they get a circular letter that would be likely to turn their interest toward the establishment of the contractor sending out the letter. Such a record would, of course, have to include some understandable method of showing who the letters were sent to, when they were sent, and what the letters were about. Any record that will meet this demand will serve the purpose and enable the necessary follow up work to be done intelligently.

If a contractor finds that he has a few prospects listed for different articles and for any reason is unable to have the necessary letters typewritten in his own office, it would be a matter of only a very small expense to get some typist working elsewhere to take care of this limited amount of work after regular working hours.

Good For Small Business Man

This method of promoting business is especially to be recommended for the
(Continued on page 23)

A. Plumber & Fitter Co. Plumbing and Heating Engineers

(Date line)

Dear Mr. (or Mrs.)

May the happiest day you have ever known be the dullest you will experience during the next 365. That's our New Year's greeting to you.

Everyone is wishing you much happiness and prosperity during 1921, but it is our earnest desire to make this a reality for you.

A well-heated, comfortable home with a beautiful bath-room, a convenient and easily-cleaned kitchen sink, together with labor-saving laundry tubs and a handy vacuum cleaner, will do more to bring real happiness and contentment than mere words.

These mean a real happy New Year, with no misdirected energy, little effort, time saved, and good health; without which prosperity is a term unknown.

Will you let us make the New Year happy and prosperous for you? Our services are entirely at your disposal. Simply command and we'll obey.

Yours obediently,
(YOUR NAME)

Mr. (or Mrs.)

Address

City

A. Steamfitter Company Heating Engineers

(Date line)

Dear Mr. (or Mrs.)

We hope you will have a most Happy and Prosperous 1921.

You know your plumbing and heating man is not all bad. We're just human, and being human we sometimes make mistakes, for which we often get cussed and discussed.

But plumbing and heating will go wrong—wear just as anything else about the house—and then a doctor is needed at once. As Doctors of Plumbing we want you to feel perfectly free to call upon us any hour of the day, whenever we can be of the slightest possible assistance to you.

Like other mortals, we are making New Year resolutions. One hundred per cent. service is our motto for 1921. So if that heating plant misbehaves itself, or if Jack Frost gets nasty with your water pipes, you can put your finger on our latch string by calling Main 6000.

All we ask is that you call us when you've got something you are particular about or in a hurry for. You'll receive the best service ever. We are,

Yours to command,
(YOUR NAME)

Mr. (or Mrs.)

Address

City

A SALES LETTER A DAY KEEPS THE SHERIFF AWAY

You've heard the old saying that sounds something like the foregoing sentence. In this little remark Old Doctor Business Builder gives you a prescription that's really a wonderful "pick-me-up" for a sluggish order book. In fact, the only way this medicine can be improved on is by increasing the dose and sending several letters, also doing a reasonable amount of other good advertising.

Two letter suggestions for this month, as shown herewith, are a couple of cracker jacks as promoters of general good will. Incidentally, either or both of them will do much to remind the one who gets the letter that you are still in business and able and willing to give them top-notch attention.

Get a jump on your New Year's resolutions and make it a point that you send out letters like these to all your friends and customers. Then just compel yourself to keep the good work up along the same lines, throughout the New Year. You'll be glad you did, when next December rolls around. But Don't, Don't, Don't, Don't expect overnight results. If you do you're sure going to be sadly disappointed.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

TORONTO PLUMBERS' UNION ELECT ITS OFFICERS

At the meeting of the Canadian National Plumbers and Steamfitters Union, No. 146, held in Toronto, the following officers were elected: President, W. Patterson; vice-president, J. Falvy; secretary, A. Wright. The union reports that all members are at present employed, and that the membership has been greatly increased during the past few months. The meeting endorsed a resolution against the practice of allowing American architects to draw plans and specifications for the public buildings in Canada.

HAMILTON PLUMBERS ELECT OFFICERS

Hamilton, Ont.—The Hamilton Society of Sanitary and Heating Engineers held their annual election of officers at the recent regular meeting. The new officers are as follows:

President—A. E. Fletcher.

Vice-President—Thos. Arthurs.

Secretary-Treasurer—P. J. Smith.

STEAMFITTERS SECEDE

Officers of Steamfitters' Union No. 665, Buffalo, N.Y., make public a resolution recently adopted declaring against closed shop regulations and announcing its withdrawal from the international steamfitters' organizations and the American Federation of Labor.

The local will continue its organization and expresses confidence in its ability to maintain present wage scales and hours of labor by increased production.

"The increased production that our freedom from outside dictation will enable us to deliver will mark all the reduction in costs our employers can fairly ask," the resolution states.

ONE - ROOM DWELLINGS UN- SANITARY

Hamilton.—One room dwellings, commonly known as shacks, were roundly condemned by Inspector W. F. Thornley at a meeting of the Board of Health. He urged that the civic bylaws be amended so as to make it unlawful for families to occupy such buildings, adding that living conditions in such an environment were insanitary and improper. Inspector Thornley said there were far too many of these one-room dwellings in the east end of the city. Controller Davis, chairman, said he hoped the board would endorse the recommendation of Inspector Thornley.

PLUMBER CHAIRMAN TORONTO BOARD OF HEALTH

F. R. Maxwell, president of the Canadian Society D. S. and H. E., who was returned as alderman in the Toronto municipal elections, has been appointed chairman of the local Board of Health.

CHATHAM ANXIOUS REGARDING HEAT

Chatham.—Anxiety is being felt on the part of patrons of the Chatham Steam Heating Company regarding the prospects for heat during the balance of the winter. The company serves heat to a large proportion of the people in the business section of the city, utilizing for this purpose the exhaust steam from the plant of the C. W. and L. E.

At the meeting of the directors of the Chamber of Commerce the situation was discussed, and an effort will be made to solve the problem for the steam heat users who have no other way of heating their buildings. The Chatham Gas Co. may be successfully applied to for a supply to tide the users over until the end of the season, and it is probable the Steam Heating Company will erect their own steam plant to provide the service next winter.

INCREASE CALGARY WATER RATES

Calgary, Alta.—Increases in water rates, which will provide close to \$20,000 additional revenue for the department, overcoming the present deficit and providing a start towards a reserve surplus fund next year, were adopted by the city council at the final meeting of the year. The schedules finally adopted provided a compromise on the first recommendations of the commissioners, whereby the flat rate minimum for the year will be made \$10.50 instead of \$9.50, as at present.

RULING UNDER INCOME WAR TAX 1917 RE STOCK DIVIDENDS

The following ruling has been issued by the Finance Department, Ottawa, concerning stock dividends:

"Dividends paid exclusively from profits realized before the 1st January, 1917, may be distributed on or before the 31st December, 1920, without being liable to taxation. Dividends distributed after the 31st December, 1920, shall be subject to taxation irrespective of the time profits were realized."

Attention is particularly directed to the time limit fixed by the above ruling of the Finance Department.

MONTREAL HOUSING LAW A DEAD ISSUE

Montreal.—"The housing law is a dead letter so far as Montreal is concerned," said Chairman Decary referring to the delegation that waited on the Administrative Commission. "The Administrative Commission will not take any further steps in the matter, at least not with the present law," added the chairman.

Maritime News

PLUMBER AND TINSMITH ELECTED TO BOARD OF DIRECTORS

St. John, N. B.—The annual meeting of the St. John branch of the Canadian Building and Construction Industry Association was held in the Board of Trade rooms, with the president, J. A. Grant, in the chair.

This organization was formed in St. John last year, and is affiliated with the Canadian association, with headquarters at Ottawa. The reports of the president, secretary and other officers were read and these showed that the association was in a flourishing condition.

The annual convention of the association is to be held in Winnipeg on January 19, and the president, J. A. Grant, and W. J. Crawford, were elected delegates from the local branch.

The election of officers resulted in the re-election of J. A. Grant as president and John Flood as first vice-president. H. L. McGowan was elected second vice-president, W. J. Crawford honorary secretary, and C. S. Christie honorary treasurer.

The board of directors, which is composed of the officers and one representative from each trade, was elected with the following members of the different trades: S. C. Webb, electrician; F. E. Wetmore, carpenter; H. O. Clark, mason; D. J. Barrett, sheet metal worker; R. E. Fitzgerald, plumber; N. Nonnenian, tilers; J. H. Rullen, painter; J. P. Mooney, general contractors; G. H. Waring, mill, machine and iron workers.

There was a full attendance of members present. The objects of the association were enumerated by the president, who said that they were for the mutual benefit of the members and for the purpose of dealing fairly with the manufacturers, supply men, and with labor.

WESTERN ONTARIO NEWS.

Plans are being rushed and tenders will be called early in March for new main building and two science buildings for the Western University to cost \$1,000,000. Prices wanted on steam heating equipment, plumbing and electrical work. Tenders will be received by Prof. Sherwood Fox, Western University, London.

* * *

In the recent elections at Petrolia, Ont., Joe Landon, plumber for Pollard Bros., was elected as alderman. This is the second time he has been honored by a seat in the council.

* * *

R. H. Waite, plumber, Dutton, Ont., has just moved to new and larger premises north of the Patron block.

* * *

Plans are being prepared and tenders will be called for shortly for a \$50,000 addition to the Sheldon Hotel at Blenheim, Ont. A number of new bathrooms will be installed and additions made to the heating system. W. Allor, the proprietor, wants prices immediately on equipment.

* * *

Elmond Ryall, Olinda, Ont., is preparing plans for new residence to cost \$8,000 and wants prices on heating and plumbing equipment.

* * *

William Tapping is preparing plans for new \$7,000 residence at Ruthven, Ont., and is interested immediately in prices of heating and plumbing.

* * *

Scott Bros. have opened a shop at Kingsville, Ont., and will handle plumbing and heating work.

* * *

Prices are wanted immediately for plumbing and heating in connection with new \$25,000 school to be erected at Kingsville, Ont. Robert Black is secretary of the board.

* * *

The school board at Dashwood, Ont., plans to completely remodel the heating system in the public school and wants prices. G. Koch, chairman.

* * *

John Douglas, of Avonbank, Ont., is preparing plans for a new \$5,000 residence and is interested immediately in prices of plumbing and heating.

* * *

Indications point to the largest building year on record at London, Ont. Men in the trade have been busy throughout the winter and it is an impossibility to secure experienced workmen. Among the work to be commenced immediately is the Sick Children's Hospital, costing \$250,000; Home for Incurables, costing \$200,000; three large buildings for the Western University, cost \$700,000; a \$30,000 children's shelter; three new factory buildings for the Service Motor Truck Co. in Chelsea Green to cost \$250,000; a \$200,000 addition to the factory

of Beatty Bros., and a \$100,000 factory for the London Concrete Machinery Co. Aside from the troubles created by shortage of skilled help master plumbers state that conditions are vastly improved in respect to obtaining materials. In addition to the work mentioned above the contract for the new million dollar hotel has been awarded to the Frid Construction Co. of Hamilton. Prices are being asked on plumbing and heating and also electrical work. Another good sized job likely to go ahead in the spring is a 24-suite apartment block for John Hayman & Sons.

* * *

Ex-Ald. John H. Saunders has again been elected chairman of the Board of Health at London, Ont.

* * *

John Eggett was not only re-elected again as a member of the Board of Education at the recent elections in London, Ont., but was at the reorganization meeting of the board appointed to the two most important committees, the Building Committee and the Industrial and Art Committee.

* * *

The Mack Furnace Co., of Detroit, has purchased the old plant of the Defiance Iron Works at Chatham, Ont., and will remodel it and build additions. Equipment will be installed for turning out fifty furnaces a day.

* * *

A. Skelly has been awarded the plumbing and heating in connection with the \$50,000 addition to the Home for Incurables at London, Ont.

* * *

The Wright Teale Co. has contract for plumbing and heating for new offices for the Elliott Marr Co., at London.

* * *

Tenders will be received February 1 for plumbing, heating and electrical work in connection with remodelling of the London Loan Building at London. Architect W. G. Murray will receive them.

* * *

Plans are being prepared and tenders will be called early in March for a new \$40,000 hydro-electrical building at London, Ont. Prices wanted on heating and plumbing. E. V. Buchanan, general manager.

* * *

W. G. Murray, Dominion Savings Building, London, will receive tenders about February 1 for new heating system for the public school at Glencoe.

* * *

Loretteville, Que.—Municipal Council of Loretteville has asked the Dominion Government to build a large postoffice building to replace the old one.

ASK SPECIAL TARIFF FOR GALVANIZED IRON AND STEEL SHEETS FOR CULVERTS

Ottawa.—R. W. Gladstone, on behalf of the Canadian Iron Ingot Co., which has factories at Guelph and three other

places and makes galvanized corrugated pipe used for culverts on roads, appeared before the Tariff Commission and presented a case on the special galvanized sheets which are his firm's raw material, but are not manufactured in Canada, there is a duty today of 12½ per cent. under an old and unsatisfactory classification. Materials used for gas and water pipes in the city pay only 5 per cent. duty, and here material used for the benefit of the rural communities has to bear a levy of 12½ per cent. To abolish this unjust discrimination, Mr. Gladstone urged that a new specific tariff item should be created for "heavy galvanized iron or steel sheets for culverts used for building public roads." The commission promised all consideration to his request.

BIG BUILDING RUSH IN LONDON

London, Ont.—The greatest rush of building that has ever been known will mark the opening of spring in London. In addition to a large number of the better class of residences tenders will be called shortly for larger work, including a new \$650,000 collegiate; Sick Children's Hospital, to cost \$250,000; factory for the Rawleigh Products Co., \$200,000 addition to Bethseda Hospital \$85,000; new east end Salvation Army hall, \$25,000; new Children's Shelter in South London, \$25,000; addition to factory of the London Concrete Machinery Co., \$25,000, and a new \$50,000 church for the Christian Church congregation. Tenders will be called in March for three new buildings for the Western University, to cost \$1,000,000. The contract has just been awarded to the Frid Construction Co., Hamilton, for the new million dollar hotel and the old buildings on the site are being wrecked. John Hayman & Sons have plans for a new block of apartments to cost \$75,000.

WOULD ELIMINATE STRIKES

Ottawa.—Plans to eliminate strikes and labor disputes in various branches of industry in Canada will be placed before a general meeting of the association of Canadian building and construction industries which has been called for Winnipeg on January 19, 20 and 21. For some time the members of the executive of the association have been engaged in preparing a plan to have wages in the industry standardized by sections through the Dominion. They have also been at work on a standard contract form to be used by all contractors and sub-contractors in undertaking any building work. By the use of standardized wage agreements and building contracts they hope to save the contractors and workmen thousands of dollars by settling all difficulties that may arise without a cessation of work, which usually comes when the building season is at its height. The session of the association is generally regarded as one of the most important industrial meetings to be held in Canada this year.

2,000 Toronto Homes Lack of Ample Space

And 75% of the six and eight room houses of this city are occupied by two or more families.

These are existing conditions as reported by the City of Toronto Board of Health.

The congestion may be even more appreciated when attention is directed to the fact that the vast majority of these six and eight room homes are supplied with bathroom equipment suitable for a single family only.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

k Sanitary Conveniences Kind

These facts illustrate needs that may be supplied with bathroom equipment among the six and eight room homes of Toronto, without taking into consideration other requirements within the city.

Conditions in other Canadian cities and towns, without doubt, offer opportunities equally great, as Toronto is probably as up-to-date and as well supplied with bathroom equipment as other cities and towns in the Dominion.

It is plainly evident that there are vast opportunities for business to be had by Sanitary Engineers throughout the country, which can be secured if all members of the trade take steps to awaken the Public to the urgent existing needs and reach out for the business.

Mfg. Company, Limited

Halifax Office:
CURDY BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Tenders, Contracts Awarded, Construction, etc.

PLUMBING CONTRACTS AWARDED

Ottawa.—Plumbing and heating contracts for six residences costing \$24,000 for Barrett Bros., 260 St. Catharines St., are awarded to J. R. Cameron, 488 Lewis St., and D. Rankin, 291 Sunnyside Ave., respectively.

Halifax.—H. G. Hagen & Co., Hollis St., have contract for heating for Isolation Hospital for Board of Health, City Hall.

Edmonton, Alta.—Reed & Turnbull, 10121 98th St., have contract for installation of plumbing fixtures in Rutherford School, for Edmonton School Board.

Brantford, Ont.—Additional contracts for church for St. Matthew's Lutheran Church are: Heating, Geo. A. Elliott, Jr., 193 Colborne St.; plumbing, R. S. Hope, 217 Terrace Hill St.

Toronto.—George P. Quigley, 12 Elizabeth St., awarded plumbing and heating contracts for three residences for R. English.

Toronto, Ont.—Heating contract for residence costing \$16,000 on Benlamond Ave., for A. Fisher, Church and Lombard Sts., is awarded to Pease Foundry Co., Ltd., 118 King St. East.

Toronto, Ont.—R. T. Hearn & Co., 1369 Queen St. W., have heating and plumbing contracts for duplex residence costing \$19,000 for Mrs. O. Taylor, care of H. R. Watson, architect, 907 Excelsior Life Bldg.

Windsor, Ont.—S. Keyser, 753 Gladstone Ave., is erecting a residence on Hall Ave., and awarded plumbing and heating contracts to Windsor Hardware Co., 518 Pitt St. W.

Winnipeg, Man.—Plumbing, heating and ventilating contracts for Deaf and Dumb Institute, costing \$621,000 for Prov. Gov't., Dept. Pub. Works, are placed with Mowyer Boag, Ltd., Portage Ave. E.

Montreal, Que.—Plumbing and heating contracts for duplex residence costing \$16,000 for R. A. Outhet, 264 Beaver Hall Hill, are awarded to W. H. Bradford & Co., 31 Westminster Ave.

Mimico, Ont.—Plumbing, heating and electrical contracts for residences for J. Ford, Burlington Rd., are awarded to J. H. Doughty, Queens Ave.

Port Dalhousie, Ont.—A. H. Jones, Main St., has plumbing and heating contracts for residence for Malcolm Link.

St. Catharines, Ont.—W. W. Park, 49 Queen St., is building a store for Grand Central Hotel to be occupied by Miss Glass, milliner, 324 St. Paul St. Plumbing and painting contracts are awarded to J. Peart, 36 Queen St., and Begg & Son, James St.

Peterboro, Ont.—Additional contracts for theatre costing \$150,000 for Paramount Peterboro Theatres, Ltd., are: Plumbing and heating, A. W. Welch & Son, 304 Queen St. W., Toronto.

Toronto, Ont.—Plumbing contract for store and apartment, costing \$15,000, for J. Clarke & Son, 258 Main St., is awarded to A. A. Legge, 130 Barrington Ave.

WATERWORKS, SEWERAGE, ETC.

St. Thomas, Ont.—By-law authorizing construction of dam across Kettle Creek, formation of storage basin, sinking of additional wells, changing electric pumps and repairing wall of clear water basin at estimated cost of \$233,000, will be submitted to ratepayers in January. W. B. Doherty, clerk.

Thorold, Ont.—Construction of a sewer in one street is planned by Town Council. D. J. C. Munro, clerk, Thorold.

WILL BUY INSTALLATIONS

Moose Jaw, Sask.—E. J. Heath, Chestnut Ave., a director of Arena Rink Co., will buy lavatories, urinals, wash basins and toilet accessories required for rink, costing \$50,000.

CONSTRUCTION AND RENOVATION

Alliance, Alta.—New tenders for erection of school costing \$25,000 for Alliance S. D. No. 3376, will be called in spring. Wm. McNeill, secy.-treas.

Craik, Sask.—Tenders will probably be called shortly for rebuilding school, which was recently destroyed by fire, at cost of \$75,000. C. M. Trueman, secy.-treas.

Harding, Man.—By-law will be submitted early in February authorizing the erection of a school for Harding Consolidated S. D. E. D. Tuttler, architect, 405 McArthur Bldg., Winnipeg.

Mimico, Ont.—By-law will be submitted to ratepayers on January 31st for approval to issue debentures for erec-

tion of school. M. Holdenby, Chrm. School Bd.

Montreal, Que.—R. C. School Cmsm. will apply to the Legislature of the Province of Quebec at its next session for authorization to borrow \$700,000 for the purchase of land and construction of new schools.

Muenster, Sask.—Construction work on college costing \$150,000 for St. Peter's Catholic College will be started early next spring.

Ottawa, Ont.—Work on erection of theatre costing \$350,000 for Famous Players Canadian Corp., Temple Bldg., Toronto, is held up until spring.

Pollockville, Alta.—Village and County Councils are building a town hall on Center St.

Richmond, B. C.—Two by-laws will be submitted to ratepayers in January, one for \$25,000 for erection of high school at Richmond and another for \$10,000 for four-room addition to school at Steveston.

St. Hyacinthe, Que.—Work on erection of technical school costing \$100,000 for Technical School Bldg. will be commenced early in the spring. G. Gene Richer, architect, 240 Girouard St., is preparing plans.

St. Vital, Man.—By-law authorizing erection of school costing \$50,000 for Woodlawn, S. D., St. Vital, will be submitted on January 19th.

Tillsonburg, Ont.—Public School Bd. contemplates erecting an addition to present public school or a new ward school. A. E. Raynes, secretary.

Vilna, Alta.—Tenders for erection of school for Sunny Knole S. D. No. 3914 will be called in February.

Kilgard, B. C.—F. B. Rogers, Vancouver, B. C., is awarded general contract for erection of a school for Prov. Gov't. Pub. Works, Victoria.

Toronto, Ont.—H. R. Watson, architect 907 Excelsior Life Bldg., is preparing plans for a residence to cost \$20,000 for Mr. Wilgar. Tenders will be called about February 1st.

Toronto.—S. King, 1502 King St. W., will build an addition to apartment house at cost of \$5,000.

Carmel, Sask.—Rev. Father Marscelus, O.S.B., Carmel, will call tenders about April 1st, 1921, for erection of church costing \$35,000 for R. C. Congregation.

(Continued on page 28)

The "Buyers' Strike"

A Term Which Sanitary Engineers Should Refrain From Using—Public Not Organized for any Such "Strike"—Best Way to Resume is to Resume—Keep Watch on Replacement Values.

THERE has been considerable publicity given through daily papers to what has been termed a "buyers' strike." This action on the part of the general public has cut very seriously into the wholesale and retail merchants' business and has put many of them in rather a precarious financial position.

Many merchants have protested loudly both in the press and by personal conversation with their customers against this action on the part of the public. They have pointed out that if the public persist in this buyers' strike, that it will throw many people out of work and thus act as a boomerang to the people who instituted the movement. This argument would be effective if the public were organized and would definitely agree to follow a policy suggested by the merchants. They are not organized, however, and each individual is acting more or less in his own selfish interests. Merchants should recognize this fact.

Nothing Succeeds Like Success

The best way to resume is to resume. Wholesale and retail merchants and manufacturers should forbid every member of their staff to mention such words as "Buyers' Strike." They should give the impression in interviews, in their advertising and in their general conversation that business is O.K. Remember nothing succeeds like success. They should keep their customers well informed with regard to the trend of prices. They may advise them to purchase some lines, and they may even advise them to hold off purchasing other lines. The one thing they should not do is to complain about the attitude of the general public. This merely advertises the buyers' strike movement and tends to extend it.

Keep Close to Bankers

Merchants should keep close to their bankers. They should make all the economies they can and put themselves in a solid financial position, but above all, they should adopt an energetic policy with regard to getting business. Let them put on special sales if necessary, but do not announce that these sales are being put on because the public refuse to buy. Sales can be put on because they need ready cash, or for some other good rea-

son. The merchant must keep his eye on replacement values.

If manufacturers, wholesalers and retailers adopt this policy it will do more than anything else to stimulate business.

The policy as outlined herewith under the heading "Carry On" is one which was advocated in Hardware and Metal immediately after the armistice was signed. Merchants will do well to follow the same policy in view of conditions prevailing to-day.

Carry On

IF you were in a crowded theatre and one man after another arose and assured the audience that everything was all right and just to keep calm; if the actors stopped the play to make similar statements to the audience you would probably feel sure something was wrong and would get out as quickly as you could. Others would follow and very soon there would be a panic.

The same situation faces business men to-day.

The day after the armistice was signed many wholesalers and manufacturers and their travellers began to protest loudly that everything was all right, that prices would not decline, and urged retailers to stock up. We have been importuned from all sides to join the chorus and through our publications to establish confidence in the trade.

We also believe retailers should carry on and buy for their requirements, but it is the business of manufacturers and wholesalers not to be protesting that everything is all right, but to carry on in the ordinary business way. If they want retailers to buy goods, then in the name of common sense let them tell the retailers through the publications they read and have confidence in what they have to sell. If they never advertised before let them take space and in a quiet, business-like way tell the trade what they have to sell. If they do not do this the natural assumption on the part of the trade will be that they have nothing to offer, that they too are panic-stricken and have decided to economize and mark time till better conditions return.

Can you blame retailers for following the example of wholesalers and manufacturers?

We are interviewing hundreds of retailers every week in all parts of Canada and our advice is:

Don't stop the play. Carry on.

Take space in the publications your customers read and tell them what you have to sell in a simple, straightforward, business-like way.

The 1907 panic was caused entirely by lack of confidence.

It is worth millions to Canadian business men to establish confidence. You can do your part at small cost.

COMBINATION HEATING SYSTEMS

Continued from page 18

as the design of the heating surfaces in some cases permits of a lower ratio than this.

When the heating surfaces are arranged so that the air currents are split up into small streams the heating effect will be greater than where the air passes over very hot surfaces and in large volumes.

A warm air furnace should be constructed so that the smoke passages will offer little obstruction to the flow of the gases.

Grate Surface

It is usually the custom of the makers to rate their furnaces according to the number of cubic feet of air that the furnace will heat.

An engineer of experience can be guided by the manufacturer's rating; because such an engineer will use the factor of experience when choosing a furnace. Nevertheless, when unusual conditions arise, such as that where ventilation is a consideration, the engineer must have recourse to a safer basis for his estimate than that of a rating based on cubic capacity.

The rule that we are now giving will fit any set of conditions. It is a rule that may be easily transposed into a few figures when its principle is once understood. This rule is based on the grate surface required to burn the necessary amount of coal.

For ordinary conditions we may assume that the coal consumption will be three pounds per square foot of grate surface in one hour, and that the heating efficiency of the furnace will be about 70 per cent.

The term heating efficiency indicates what proportion of the heating value of the coal is used in heating the building.

When using this method of rating a furnace, everything that has a bearing on the heat loss must be considered and reduced to the terms of equivalent glass surface (E.G.S.).

In the actual figuring of grate areas required, the engineer will find, after a time, that it is unnecessary to go through as many figures as are herein given. He will find a number of short cuts whereby he may reach the same results as those of this system.

To use this rule:—

First: Reduce the cubic feet of air to be heated to E.G.S.

Second: Reduce the exposed wall surface to E.G.S.

Third: Add the E.G.S. of the air and wall to the actual glass surfaces of the windows and doors. Then multiply this sum by the temperature range. This will give the heat loss per hour in terms of B.t.u.

Fourth: Divide the heat loss by the factor of 204. This will give the required grate area in square inches.

The factor of 204 is based on anthracite coal with a heating value of 14,000 B.t.u. per pound; a heating efficiency of

70 per cent., and a coal consumption of three pounds per square foot of grate in one-hour's time.

Now, we shall take as an example of the uses of this method in figuring the grate area of the furnace required for a small residence.

A list of the rooms of this residence are given below, with their cubes; wall and glass surfaces, and exposures.

Living room:—

Cube: 1,359 feet.

Wall: 225 square feet.

Glass: 55 square feet.

Exposure: S.W.

Hall:—

Cube: 693 feet.

Wall: 162 feet.

Glass: 27 feet.

Exposure: S.E.

Dining room:—

Cube: 1,431 feet.

Wall: 225 feet.

Glass: 38 feet.

Exposure: N.W.

Kitchen:—

Cube: 1,107 feet.

Wall: 126 feet.

Glass: 41 feet.

To be continued.

**TENDERS, CONTRACTS, ETC.,
AWARDED**

Continued from page 26

Portage la Prairie, Man.—Wyatt & Ireland, Merchants Bank Bldg., Winnipeg, have general contract for erection of warehouse costing \$6,000 for Prov. Gov't., Dept. of Pub. Works, Winnipeg. General contractors will buy all materials and will sub-let trades.

* * *

Blenheim, Ont.—Tenders will be called early in March for erection of addition to hotel and alterations and improvements, to cost \$50,000 for W. Allor, Sheldon Hotel.

* * *

Kitchener, Ont.—W. H. E. Schmalz, 288 Frederick St., is preparing plans for alterations to bank to cost \$30,000 for Royal Bank of Canada.

* * *

Kitchener.—New tenders for service station costing \$15,000 for Reinhart & Doerr, 192 King St. W., will be called early in the spring. It is expected that work will be started about April 1st. W. H. E. Schmalz, architect, 288 Frederick Street.

USING PREMISES REPORT CARD

Continued from page 14

Repairing lavatory faucets—enclose pamphlet 7-12-36.

Repairing bath tub faucets—enclose circulars 3-15-36-105.

In this chart, every kind of a repair possible is listed and the numbers of the circulars to be sent with the bill are indicated. As an example, in the case of repairing a sink faucet, circular six, which is sent with the bill, is a pamphlet showing a full line of one-piece sinks; circular eighteen is a circular dealing

with combination cocks for kitchen sinks, circular twenty-five is a booklet showing rubber mats for drain-boards, towel bars, soap dishes, pipe cleaning compounds, preparations for cleaning enamel, force pumps, filters and other appliances that can be used around the kitchen sink.

In his letter, he states that accurate tabulation of the results accomplished shows that his plan has developed more profit in the six months he has had it in operation than he could possibly make from four or five large contracts. As can be seen, the system is easy to install, consumes but a very small amount of time, and should be adopted by every contractor who is desirous of expanding his business.

**SALES LETTERS BUILD PLUMBING
BUSINESS**

Continued from page 21

smaller business man. By it, he has the satisfaction of being able to absolutely control his expenditure and base the amount so spent upon the actual possibilities in view for business. In the case of such a sized business the cost of newspaper advertising, or any other form of general publicity, might easily represent entirely too much expense for the business to carry. Under such circumstances it might be very easy for the contractor to badly "overbuy" himself in the matter of expense for advertising, etc.

Another very distinct advantage of circular sales letters, sent out in limited numbers, according to the ideas of this article, is found in the fact that it is a hundred to one shot that the Government, acting as your messenger, will deliver your message directly to the exact party you want it to reach. As a result, if you have picked the party's name with judgment, you have a greatly improved chance of getting back highly profitable return on the investment of, at the most, ten cents, which would be represented by your expense for the individual letter written in your own office; or say fifty cents at the most if some outside typist write it for you.

So, if you happen to have no more than two or three people in your mind who would be prospects for business for any sort, don't let that keep you from making use of such circular sales letter suggestions as are shown herewith, as well as the other material of the same sort that you doubtless receive from time to time through the Advertising Departments of various manufacturers, and the trade press.

Letter Gets In

A two cent stamp will get inside of many a door that would be kept locked to you if you called in person. A nicely typewritten, personal, friendly, intelligent sales letter will often come closer to securing interested attention than you would yourself. If you ever really try this out you will find that it is all true; and that it surely does pay.

NEW CANADIAN PATENTS

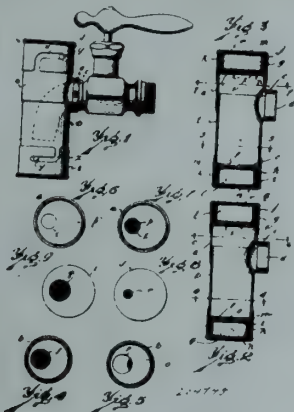
(Issued for Plumbing and Heating Goods)

NO. 204,745. FAUCET FILTER

Frank P. Williams, Detroit, Mich., U.S.A.

An attachment for faucets, comprising a barrel, means on one end to filter the water, and means on the opposite end constituting a bubbling fountain.

An attachment for faucets, comprising a barrel provided



with means for clamping the same to a faucet in substantially water-tight relation, means for closing the lower end of the faucet, and a bubbling fountain device in the upper end of the faucet operative when the lower end of the barrel is closed off.

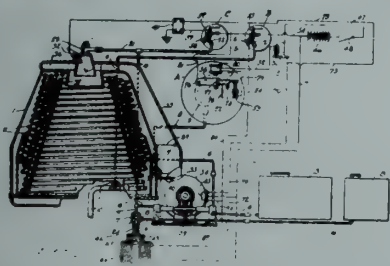
An attachment for faucets, comprising a pair of cylinders adapted to be telescoped together and clamped to a faucet elbow to form a barrel, each cylinder having a closed end except for water opening therethrough, a filter cup abutting against the lower cylinder end, a cap with a flange deeper than the filter cap adapted to fit over the filter cup and a portion of the end of the barrel, said filter cup having an opening therethrough and the said cap having an opening therethrough, the opening through the filter cup being adapted to be brought into registry or out of registry with the opening through the adjacent end of the cylinder for the purpose of cutting down the water passage through the filter and thereby causing the water to bubble through the opening in the end of the top cylinder.

NO. 205,502. STEAM GENERATING SYSTEM.

Lewis Lawrence Scott, St. Louis, Missouri, U. S. A.

In an apparatus for generating steam, a steam generator, means for supplying liquid to the generator, means for supplying fuel mixture for heating the generator, an electrical device for igniting the fuel, means for initiating the functions of the liquid and fuel supply means, and the device for igniting the fuel mixture from a single source of control.

In an apparatus for generating steam, a steam generator, an electrically controlled device for supplying liquid to



the generator, an electrically controlled device for supplying the fuel for heating the generator, an electrical device for igniting said fuel, and means governed by generator conditions for automatically and simultaneously opening and closing the electric circuit to said igniting device, the device controlling the supply of liquid to the generator and the device controlling the supply of fuel for heating the generator.

In an apparatus for generating steam, a steam generator, an electrically controlled device for supplying liquid to the generator, an electrically controlled device for supplying fuel for heating the generator, an electrical device for ignit-

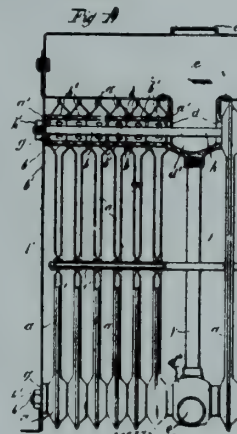
ing said fuel, means governed by generator conditions for automatically controlling the operation of the three devices named, and independent means also governed by generator conditions for automatically varying the relation between the supplies of liquid and fuel.

NO. 205,373. RADIATOR

Maurice Goudard and Marcel Meunesson, co-inventors, both of Neuilly s/ Seine, France.

A radiator for internal combustion engines comprising a number of elements made of recessed or embossed metal plate having at their upper and lower portions distance rings forming supply channels, such elements being clamped together by means of bolts located in the axis of the said rings, the construction being characterized by the fact that the said radiator consists of two groups of the said elements located on each side of a supply conduit fed from a principal cistern forming a reservoir and communicating by means of upper channels or passages with the said supply conduit, the groups of elements being united by lower channels or passages to another conduit fitted with an outlet tube.

A radiator for internal combustion engines such as that claimed in claim 1 characterized by the fact that the upper and lower clamping bolts engage at their extremities in fixed cheeks at the ends of the reservoir so that all the strain is supported by the said cheeks.



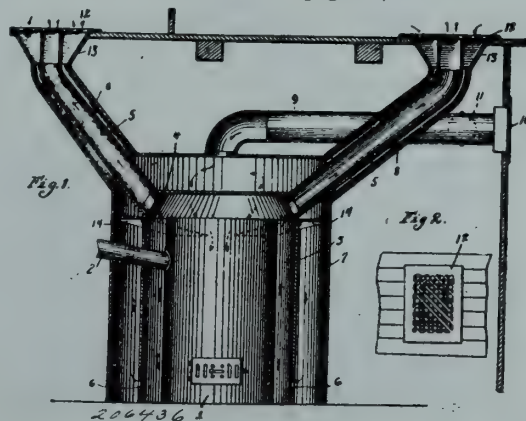
A radiator for internal combustion engines such as that claimed in claim 1 characterized by the fact that different elements are so constructed as to fit into one another in the neighborhood of the distance rings so that they are well centred, the elements being formed non-symmetrical for that purpose.

No. 206,436. HOT AIR HEATING SYSTEM.

William G. Felton, Wakeman, Ohio, U.S.A.

In a hot air heating system, the combination of a furnace, a primary jacket fitting about said furnace and being spaced therefrom, said primary jacket having openings formed

(Continued on page 36)



Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

SEVERAL reductions have been made in plumbing and steam fitting goods since the beginning of the month, and the tendency seems to be towards lower levels on many standard lines. New discounts quoted on radiators and steam boilers show a reduction in price, and new lower prices are issued on range boilers. Soil pipe and fittings have been reduced in price, and malleable pipe fittings show lower quotations. Corrugated sheets are marked down and new lower lists are in preparation for eave trough. Other goods

showing reductions are: lead pipe and waste pipe, valves, soldering coppers, sheet copper and brass, rivets and burrs, stove bolts, etc. Wrought pipe is holding unchanged, and though deliveries are improved there are only small stocks of the smaller galvanized sizes on hand. Enamelware is quieter and prices are unchanged, with little indication of any revision. This is always regarded as a quiet time of the year, but many report fairly good business for the season, due probably to the exceptionally mild weather.

MONTREAL MARKETS

MONTREAL, Jan. 13.—Many lines of plumbing supplies show reductions this week, the chief among them being soil pipe and fittings and range boilers. Soil pipe is about 10 per cent. lower in price and fittings 20 per cent. Range boilers are reduced on all "standard" sizes. The "extra heavy," only being stocked in the two smaller sizes, also show decline. Radiators and boilers are now being sold at a new lower discount. Pipe deliveries have improved very much in the last two weeks and some warehouses now have all sizes in stock; the scarcity of smaller sizes will, in the opinion of dealers, be well overcome by spring. Although a reduction in the price of closets and enamelware is expected, local prices are still remaining firm. Business continues quiet in practically all lines, but this is experienced every season at this period.

Deliveries of Pipe Improving

MONTREAL. PIPE.—The scarcity which has existed in pipe for some time is improving a great deal, and in the opinion of local manufacturers will continue to do so. Deliveries are now being made on the smaller sizes of galvanized piping, the scarcity being felt more particularly on these. With the winter months ahead, when the demand is not so heavy, it is felt that both manufacturers and jobbers will have a stock on hand and prices will have a tendency to lower a little.

LIST NO. 46 Standard Butt Weld Pipe Per 100 Ft.

	Blk.	Galv.	Gen. Wrought Iron	Blk.	Galv.
1/4	6.50	8.50			
1/2	5.31	7.41	5.91	8.01	
3/4	5.31	7.41	5.91	8.01	
1	4.10	8.63	7.95	9.48	
1 1/4	8.80	10.87	9.95	12.02	
1 1/2	13.01	16.07	14.71	17.77	
2	17.60	21.74	19.90	24.04	
2 1/2	21.04	25.99	23.79	28.74	
3	28.31	34.97	32.01	38.67	
3 1/2	44.75	55.28			
4	58.52	72.29			
	74.06	90.62			
	87.05	107.37			

Standard Lap Weld Pipe Per 100 Ft.

	Blk.	Galv.	Blk.	Galv.
2	\$32.01	\$38.67	\$35.71	\$42.37
2 1/2	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3 1/2	75.90	92.46	85.10	101.66
4	89.93	109.55	100.83	120.45
4 1/2	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Sheets and Plates

Are Dull

MONTREAL.

SHEETS AND PLATES.—The demand for sheets and plates is exceedingly small just now, but this is experienced each year at this season. Stocks are very light and a scarcity is noted in some weights.

BLACK SHEETS—

10 gauge	11 25
12 gauge	11 25
14 gauge	11 25
16 gauge	11 25
18-20 gauge	11 25
22-24 gauge	11 50
26 gauge	11 50

24 gauge 11 50

GALVANIZED SHEETS—

U.S. Standard—	
10 1/2 gauge	12 75
28 gauge	12 75
26 gauge	12 75
22 and 24 gauge	12 25
20 gauge	12 25
18 gauge	12 25
16 gauge	12 25
English Standard	
28 gauge	13 00 12 00
26 gauge	12 75 11 75
24 gauge	12 15 11 35
22 gauge	11 80 10 90
18 and 20 gauge	11 10 10 75

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Tin Plate Is In Good Demand

MONTREAL.

TIN PLATE is in good demand at present, due no doubt to the fact that the sap bucket season is drawing nearer. Although some sizes and weights show a scarcity, the size used in the making of above articles is well stocked.

Quotations are as follows: 20 x 28 x 112 coke, \$25.50 case; 20 x 28 x 56 charcoal, \$13.60 case.

Cor. Sheets Unchanged With Small Demand

MONTREAL.

CORRUGATED SHEETS.—There is nothing new to report on corrugated sheets. Prices remain unchanged and demand is light.

Corrugated Sheets— Per 100 Sq. Ft.

No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7 1/2%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

No Change Noted In Fittings

MONTREAL.

FITTINGS.—Fittings continue quiet, but now that better deliveries are being

made on piping, it is felt this may help the movement of fittings. Prices also remain as previously quoted.

PIPE FITTINGS

Cast iron fittings	Less 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Do., gal., up to 4-in.	40%
Do., ½-in. and larger	50%
Do., running thread, 4-in. and under.	30%
Couplings, 4 in. and under	20%
Couplings, ½" and larger	Net list

Class B	0 26½	0 37½
Class C	0 17½	0 26½

Closet Sales

Continue Dull

Montreal.
CLOSETS.—Although a revision is expected in the price of closets to a lower level, local dealers quote prices as previously stated. A very slow movement is being experienced.

Quotations are as follows:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Enamelled Ware

Shows No Change

Montreal.
ENAMELLED WARE.—Business continues quiet in enamelled ware, however wholesalers do not expect much movement and consider sales seasonable.

Sinks, roll rim, 18x30 in.	19 55
Sinks, flat rim—	
16 x 24	\$6 38
18 x 30	\$6 29
20 x 30	\$7 40
20 x 30	\$7 31
20 x 30	\$7 22
20 x 30	\$8 41
20 x 30	\$8 33
20 x 30	\$8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	\$43 69
Bath tubs, 5½ feet	48 54
Lavatories—	
17x19" Aprin F139 or P4045	13 00
18x24" Apron F154 or P3845 or P3847	20 06
18x21" Apron F169 or P4205	14 96
18x21" Roll Rim F197, F199 or P4655-6	13 09
17x19" Roll Rim, F241 or P4345	10 71

Range Boilers

Show Decline

Montreal.
RANGE BOILERS.—A reduction ranging from \$2.00 on the 30 gallon standard range boiler to \$10.00 on the 120 gallon is in effect this week. The least reduction is shown on the 52 gallon boiler, where there is only a decline of \$1.00.

The only two sizes stocked at present in the "extra heavy" boilers are the 30 and 35 gallons. These are reduced \$3.00 and \$2.00 respectively.

New quotations are:

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	13 00	15 00
35-gallon	15 00	19 00
40-gallon	17 00	.....

52-gallon	24 00
66-gallon	32 00
82-gallon	42 00
100-gallon	50 00
120-gallon	60 00

Lower Prices on Cotton

Waste on January 15th

Montreal.
COTTON WASTE.—Cotton waste will show a reduction in price of approximately 3 cents a pound on January 15th, when new price lists will be issued. At time of going to press new price lists were not obtainable. In the meantime prices are as follows:

WASTE	
Cream, Polishing	0 26
WHITE	
XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX, grad.	0 21½
XLGR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10
WOOL PACKING	
Arrow	0 35
Axle	0 28
Anvil	0 22
DOMINION WIPERS	
Washed and Sterilized	0 25
White Cotton	0 20
Colored Cotton	0 20

Above lines subject to trade discount for quantity.

Iron and Steel

Remain Unchanged

Montreal.
IRON AND STEEL.—Following the reduction on bar iron and steel, stated in our last issue, the prices remain unchanged for this week. A number of small shipments are being made from local warehouses, but business is generally quiet, though seasonable.

Single reeled machinery steel	6 80
Spring steel	6 00
Sleigh shoe steel	4 55
Tire steel	4 75
Toe calk steel	5 45
Band steel	4 55
Harrow tooth steel	4 70
Mining tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common bar iron	4 55
Refined iron, per 100 lbs.	6 05
Mild steel	4 55
3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.	
Band steel in scroll bdles., 50c per 100 lbs. extra.	

Radiators and Boilers

Reduced in Price

Montreal.
RADIATORS AND BOILERS.—Following the withdrawal of all prices to the trade previous to January 1st, manufacturers have issued new discounts off the list for all lines of radiators and boilers. These new prices show reductions on all lines, and are due on the part of the manufacturers to realization that although raw materials have not declined, but rather advanced in some instances, a new selling price should be arrived at that will remain unchanged during the coming year.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 40% for hot water and 41% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 50 off list.

Square or sectional hot water or steam boilers, 15-in., list price.

For Ontario Government trimmings add 5 per cent. to list.

Square or sectional water boilers, 19-in to 36-in., 2½ per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., list price. Ontario Government trimmings, add 5 per cent.

Square or sectional water or steam boilers, 48-in., list prices. Ontario Government trimmings, add 5 per cent.

Round steam boilers, standard trimmings, 5 per cent. off. Ontario Government trimmings, list price.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Lead Pipe and Waste

Show Slight Reduction

Montreal.
LEAD PRODUCTS.—A reduction of \$1.00 per 100 pounds is noted this week on both lead pipe and lead waste. Other lines remain unchanged, although zinc sheets also show a decline of one cent per pound.

Quotations are as follows:

Lead pipe, per 100 lbs.	13 50
Lead waste, per 100 lbs.	14 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	Net list
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¾ c lb. extra and cut sheets to size, ½ c lb. extra.	
Solder, guaranteed, lb.	0 29½
Do., strictly, lb.	0 27½
Do., commercial, lb.	0 24½
Do., wiping, lb.	0 25½
Wire solder—	
40-60	0 30
45-55	0 31¾
50-50	0 33¾
Zinc sheets, casks	0 15½
Do., broken lots	0 16½

10 p.c. Reduction on Soil Pipe; 20 p.c. on Fittings

Montreal.
SOIL PIPE AND FITTINGS.—Revised prices on soil pipe show a further discount of 10 per cent. on all lines with the exception of 8 inch fittings, which are lower by 20 per cent. on all sizes from 2 inches to 8 inches.

SOIL PIPE (medium and extra heavy)—
2, 3, 10%; 5 and 6-inch, 15% discount.
4-inch, 20% discount.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Demand for Compression Goods Light

Montreal.
COMPRESSION GOODS. — The demand for compression goods is seasonably light. However, a lower tendency is shown and some makes of valves have been reduced. Jenkins globe valves are now list price, a reduction of 20 per cent.

Compression work, standard	Less 25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	23-30%
Flatway stop and waste cocks, standard ..	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%

Globe, angle and check valves, standard.add	5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Firmer Tone Noticeable On Waste Materials

Montreal.

SCRAP MATERIALS.—A few changes are noted this week on scrap metals. Wrought iron shows a decline of \$5.00 a ton, and stove plate is reduced \$4.00 per ton. A slight reduction is also noted on scrap zinc. The market is reported quiet, but a firmer tone noticeable.

Dealer's Buying Prices

Automobile tires	0 75	....
Yellow brass	0 07	....
Red brass	0 12½	....
Light brass	4 50	....
Scrap zinc	0 05	....
Lead, heavy	4 00	....
Lead, tea	2 50	....
Light copper	9 00	....
Heavy copper	11 50	....
Wrought iron, R. Rd., No. 1, per		
gr. ton	13 00	....
Malleable scrap (ton)	15 00	....
Pipe scrap (ton)	9 00	....
Heavy melting steel	15 00	....
No. 2, busheling	5 00	....
Boiler plate	12 00	....
Stove plate (ton)	20 00	....

Ingot Metals Continue Firm, Improvement Noted

Montreal.

INGOT METALS.—An improvement is noted this week in metals. Prices continue firm and the sterling exchange is being regarded with much interest as this has quite an effect on all metals. The exchange has advanced considerably during the last few days.

TIN.—This metal is still holding steady in London. The advance in sterling exchange has had a strengthening effect on it. A steady market is looked for and local quotations are 44 cents.

COPPER.—Copper is decidedly firmer in New York, and with production still being curtailed, the situation is improving. The local price on electro is 19½ cents and on casting 19 cents.

LEAD is showing slightly firmer without much marked strength. The market will, no doubt, be irregular for a while. Local price is unchanged at 7½ cents.

SPELTER.—The London market on spelter is strong, although in the U. S. it is practically lifeless. The price should improve in time, but there is no immediate sign at present. Quotation 8¼ cents.

ANTIMONY.—This metal is stronger in New York where there is some talk of a duty being imposed on Chinese and Japanese imports. Local price is 8½ cents.

ALUMINUM.—There is nothing new to report on aluminum. Local price continues at 35 cents per pound.

TORONTO MARKETS

TORONTO, Jan. 13.—Many important price changes have been made on plumbing and steam-fitting goods during the past two weeks. Range boilers have been reduced and all sizes but one are lower. New discounts on radiators and water boilers show a decline in prices. Soil pipe and soil fittings are quoted at lower levels. Pipe fittings, both malleable and cast, have been revised in price and are lower. Corrugated galvanized sheets have been reduced and lower quotations are being made on eavetrough. Some of these declines have been forecast in Sanitary Engineer in previous issues. Other lines showing lower quotations are lead pipe and lead waste, sheet copper and brass, valves, soldering coppers, rivets and burrs, and white lead in oil. Wrought pipe is holding unchanged and bar iron and steel, sheets and plates are holding at recent declines. Closets and enameledware are unchanged, but are quiet. Business generally, though quiet, is reported by many to be up to the average for the time of the year.

New Lower Prices on Radiators

Toronto.

RADIATORS.—Changes have been made on radiator prices and the discount on the standard radiator is now 40 per cent. for hot water and 41 per cent. for steam. Wall radiators have also been changed to 39 per cent. Business is on the light side on these goods. The new quotations are the following:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 40% for hot water and 41% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%

Hot Water Boilers Are Reduced

Toronto.

HOT WATER BOILERS.—New discounts are quoted on King and Royai round hot water boilers and are a reduction. The present quotations are 50 per cent. off list instead of 40 per cent.

Tank heaters numbers 0 and 10 are now 50 per cent off; Nos. 12, 112, 15, 115, at 47½ per cent., and No. 1 laundry 50 per cent.

Stoves and Furnaces Move More Slowly

Toronto.

STOVES AND FURNACES.—The supply of stoves has practically caught up with the demand now, and little is heard of shortages in these lines at the present time. Sales are light and the fact that dealers are usually keeping their stocks at a minimum and replacing goods as they are sold is responsible for smaller orders being received more frequently than used to be the case. Quotations on furnaces, heaters and ranges are holding firmly and little indication is given of any approaching change.

New Lower Prices on Range Boilers

Toronto.

RANGE BOILERS.—As foreshadowed in last issue, range boilers are now lower in price. The new quotations constitute a reduction of from 5 to 17 per cent., the declines being largest on the smaller sizes. The extra heavy boilers are also lower with the exception of the 82 gallon size, which is now \$50 instead of \$48. Sales are reported to be smaller now, but a steady movement is still noticed. Following are the new prices:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Bar Iron and Steel Are Quieter

Toronto.

BAR IRON AND STEEL.—There is very little new in bar iron and steel and business is reported to be quiet. Mills are reported to have been shipping out supplies and little is being consumed now, so that stocks should be accumulating. No price changes are recorded and quotations are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter....	\$ 5 50
Common bar iron, 3-16 in. and lighter....	5 50
Common bar iron, ¼-in. and heavier	4 75
Angle base	6 00
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 50
Spring steel	12 75
Mining drill steel	28 00
Common cast tool steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	7 50

Soil Pipe Quotations Are Lower

Toronto.

SOIL PIPE.—A reduction has been made since the last market report on soil pipe. This was forecast in the last issue of Sanitary Engineer. The de-

clines range from 20 to 25 per cent, according to size. Medium and extra heavy pipe in 2 and 3 inch is now quoted at 10 per cent. off list instead of plus 10; 5 and 6 inch pipe is now 15 per cent. off list; 4 inch, 20 per cent. off, and 8 inch 5 per cent. off list. The declines are due to lower pig iron prices and cheaper markets. Reductions have been made in soil pipe fittings also, and the new quotations are, 2 to 6 inch, 40 per cent. off list; 8 inch, 5 per cent. Previously the discounts were plus 20 on the 8 inch and 20 per cent. off on the smaller sizes.

New quotations are as below.

SOIL PIPE (medium and extra heavy)—

2 and 3 inch, 10%.
4 inch, 20%.
5 and 6 inch, 15%.
8 inch, 5%.

FITTINGS—

2 to 6 inch fittings, 20% discount.

Conductor Elbows

Are Quiet

Toronto.

CONDUCTOR ELBOWS.—Prices are unchanged on these lines and present sales are light.

Following are quotations:

ROUND CORRUGATED OR CRIMPED ELBOWS	
2 inch, list	\$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Revisions on

Eavetrough Prices

Toronto.

CONDUCTOR PIPE AND EAVES-TROUGH.—Reductions are being made on eavetrough and lower prices will shortly be in effect. The demand is rather light for these goods at the present time. Quotations are the following at the time of writing:

PIPE (Conductor)

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in

Per 100 ft.	Per 100 ft.
8-in.....\$6 90	15-in.....\$12 50
10-in.....7 70	18-in.....16 00
12-in.....9 10	

Add 25% to the above list.

Cotton Waste

to be Lower

Toronto.

COTTON WASTE.—Changes are in progress in the price of cotton waste, but new lists will not be ready for a few days. It is stated that reductions of from 2 to 3 cents per pound are being made. A somewhat firmer tone is being displayed in the raw cotton markets.

Corrugated Sheets Show

Decline in Price

Toronto.

CORRUGATED SHEETS.—A reduction has been made in the price of galvanized corrugated sheets, and the decline amounts to about 7 per cent. on 26 and 28 gauges and about 15 per cent. on

other sizes. The 75 cents extra for lighter than 24 gauge and wider than 27 inches is omitted, and the following substituted: for one inch corrugation, 50 cents per square extra is charged. Sales are said to be light now on these lines. Following are the new quotations and they are subject to 7½ per cent. discount:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	10 50
No. 26 gauge	11 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00

Less 7½%.

For 1 inch corrugation add 50c per square extra.

Further Reductions on Lead and Waste Pipe

Toronto.

LEAD AND ZINC PRODUCTS.—Since the last issue of Sanitary Engineer a further decline has taken place in the price of lead pipe and lead waste of one cent per pound, list. Solders are holding at recent declines. Lead has shown the biggest decline of any metal during the past year, and compared with the high level prices reached last spring the present prices show a 50 per cent. drop. It is uncertain whether the bottom has been reached, but it is noted that this week has seen a little firmer tone shown on primary pig lead markets both in the States and in England and slightly higher quotations are made. Many are of the opinion that further declines in this metal are improbable. Present quotations are the following:

Lead pipe, list, per lb.	0 13½
Lead waste pipe, list, per lb.	0 14½
Do., over 8 in., list, per lb.	0 15½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	Net
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 36
Do., strictly, lb.	0 27
Do., commercial, lb.	0 25½
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 25
Zinc sheets, per lb.	0 18
Calking lead	0 16½

Sheets and Plates Hold;

Small Movement

Toronto.

SHEETS AND PLATES.—Trade is reported to be inactive in these lines at present. Prices are nominally unchanged, although for fair sized orders better quotations may possibly be secured. Some wholesalers are of the opinion that there may be further recessions in sheet prices before very long.

Reports from the Pittsburgh district indicate that there is but little activity in the sheet mills and state that it is probable that less than one-third of the independent mills are running at the present time. English markets are reported to be weaker in galvanized sheets with little export business being done just now.

Quotations here are the following:

BLACK SHEETS		
14 gauge	8 35	9 30
16 gauge	8 40	9 40
18-20 gauge	8 45	9 45
22-24 gauge	8 50	9 50
26 gauge	8 55	9 55

28 gauge	8 65	9 65
3-16 in. plate	6 50	7 00
¼-in. boiler plate	5 50	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier	Apollo
10¾ oz.	9 90 11 30	10 00 11 35
U.S. 28	9 50 10 90	9 60 11 05
U.S. 26	9 20 10 60	9 30 10 75
22 and 24	9 05 10 45	9 15 10 60
18 and 20	8 90 10 30	9 00 10 45
16	8 90 10 30	9 00 10 45
12 and 14	8 75 10 15	8 85 10 30

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Wrought Pipe

Shows No Change

Toronto.

PIPE.—No changes have been made in pipe prices and quotations are still made from list No. 46, which is attached. Sales are light at present, but there is a very fair demand for the period of the year. This is probably due to the fact that stocks have been low for some considerable time and also to the fact that the smaller sizes of galvanized pipe have been particularly scarce. Improvement is manifest in the deliveries of wrought pipe and there should be a more favorable turn to the market from now on. Prices of the independent mills have come down at last to the Industrial Board levels on American markets.

Present quotations are the following:

LIST NO. 46 Standard Butt Weld Pipe Per 100 Ft.

	Steel	Gen. Wrought Iron
	Blk.	Galv.
¾	\$ 6.50	\$ 8.50
1	5.31	7.41
1¼	5.31	7.41
1½	7.10	8.63
2	8.80	10.87
2½	13.01	16.07
3	17.60	21.74
3½	21.04	25.99
4	28.31	34.97
4½	44.75	55.28
5	58.52	72.29
5½	74.06	90.62
6	87.05	107.37

Standard Lap Weld Pipe Per 100 Ft.

	Steel	Gen. Wrought Iron
	Blk.	Galv.
2	\$32.01	\$ 38.67
2½	48.26	58.79
3	63.11	76.88
3½	75.90	92.46
4	89.93	107.55
4½	1.05	1.29
5	1.22	1.50
5½	1.58	1.95
6	2.06	2.53
6½	2.16	2.66
7	2.49	3.07
7½	2.98	3.67
8	2.77	3.41
8½	3.56	4.39

Lower Quotations

on Malleables

Toronto.

PIPE FITTINGS.—Changes have been made this week on fittings and malleables are reduced. Class B black are quoted at 24 cents and galvanized at 34 cents. The old quotations were 30 and 40. In class C fittings the new prices are 16 and 24 cents, in place of 20 and 30. Malleable and cast bushings are now 25 per cent. off list, a reduction of 9 per

cent., and union are quoted at 37½ per cent. off list, a decline of 11 per cent. Plugs are 22½ per cent. instead of 15 per cent. There is a fair demand for the season and stocks are now in better shape. Following are new quotations:

PIPE FITTINGS

Cast iron fittings	Net
Plugs	22½%
Bushings	25%
Unions, ¼" to 2"	37½%
Do., ½ in., 2½ to 4 in.	25%
Dart Unions, blk., ¼ in. to 2 in.	20%
Do., ½ in., 2½ to 4 in.	8%
Do., galvd., add to black	30%
Nipples, blk. and galvd., ½ to 4 in.	50%
Do., 4½ in. and larger	40%
Do., running thread	20%
Couplings, 4 in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 80
Class B	0 24	0 34
Class C	0 16	0 24

Sales Light on

Enamelled Ware

Toronto.

ENAMELLED WARE.—Sales are light just now on enamelled ware, but some wholesalers state that they have been getting more business than they were expecting, and put it down to the exceptionally mild weather. Prices are holding firm and little change appears to be probable at present. Quotations are being made at 20 per cent. off following list except where net prices are stated:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	\$51 40
Bath tubs, 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16 25
Do., do., 5½ ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90

All above list except lines marked net. Discount 20% off these prices.

Closet Prices Held

at Recent Change

Toronto.

CLOSETS.—While business is quiet on these lines there is said to be a little more activity than usual in these goods. Stocks are reported to be about the average and no changes are announced. Prices are holding at declines noted in last issue, and are as follows:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enamelled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Compression Goods Have Downward Tendency

Toronto.

COMPRESSION GOODS.—There is

said to be a moderately fair movement of these goods in the smaller sizes. Some lines of valves have been reduced in price lately, and it is expected that other revisions may take place shortly. Many look for a downward tendency on brass plumbing goods, and it is noted that large manufacturers of these lines in the States have reduced their prices from the beginning of the year. Following are quotations on some of the principal lines:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C.	Net
Gate or straightway	Net
Jenkins gate valve	7/10%
Standard gate	list plus 5%
Jenkins Globe	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks	
No. 1 and 1. Fuller pattern	30%
Quick opening	28%
Lead pipe, list, per lb.	0 13½

Lower Levels on

Copper and Brass

Toronto.

COPPER AND BRASS.—Some changes have been made on brass and copper quotations and prices are shaded a little. Copper ingots are dealt with under ingot metals. Copper rods ½ inch to 2 inch are 37 cents per pound; soft sheets, plain, 16 oz. and heavier, 37 cents; polished and tinned ditto, 48 cents; tubing, 42 cents. Quotations on brass are: sheets, base, 32 cents pound; rods, base, ½ to 1 inch, round, 29 cents; tubing, seamless, b. se. 39 cents.

Soldering Coppers

Reduced in Price

Toronto.

SOLDERING COPPERS.—A decline of about 16 per cent. has been made in the price of soldering coppers, and the new base quotation is 52½ cents per pound.

New Discount on Iron

and Copper Rivets

Toronto.

RIVETS AND BURRS.—Reductions have been made on rivets and burrs, and the new discount on iron rivets and burrs is 37½ per cent. on black and tinned. The usual extras apply on small quantities. Copper rivets and burrs are now quoted at net list instead of plus 15 per cent. Copper burrs sold separately are unchanged at 50 per cent. advance.

Bolts and Nuts

Show Reduction

Toronto

BOLTS AND NUTS.—Reductions have been made in the prices of bolts and nuts, and the following are the new discounts on some of these lines. Stove bolts are now quoted at 57½ per cent. off list, in place of 47½ per cent. Lag screws are now 20 per cent. off list. Ma-

chine bolts ¾ inch diameter and smaller, 4 inch and shorter, 30 per cent. off list. Ditto ¾ inch diameter and longer than 4 inch, and 7-16 inch diameter and larger sizes, 5 per cent. off list. The new quotations on nuts are for 2 inch and smaller as follows: square, blank, add to list \$2; square, tapped, \$2.50; hexagon, blank, \$2.25; hexagon, tapped, \$2.75.

New Lower Prices on Penberthy Valves

Toronto.

PENBERTHY VALVES.—New and lower prices went into effect on January 1st on Penberthy valves, and constitute a reduction of approximately 15 per cent. New discounts are the following:

Gate valves, 15 per cent.; regrounding valves, 10 per cent.; swing check valves, 5 per cent.; compodisk valves, 10 per cent.

New Prices on Oils and Turps.

Toronto.

OIL AND TURPENTINE.—\$1.50 per gallon is asked for turpentine in 5 gallon lots, and \$1.25 for raw linseed oil; containers extra. In barrel lots prices are 15 cents per gallon less.

Dry Red Lead

Reported Easier

Toronto.

RED LEAD, DRY.—Present prices on genuine English dry red lead are \$14 per 100 pounds in kegs and 16 cents per pound in small quantities. This is a reduction from previous quotations.

White Lead in Oil

Reduced Again

Toronto.

WHITE LEAD IN OIL.—Reductions have been made again on white lead in oil and new prices are \$1.25 per cwt. under previous quotations. The standard pure is quoted at \$17.30 per 100 pounds in less than one ton lots.

Boiler Tubes Quiet

and Unchanged

Toronto.

BOILER TUBES.—Prices are holding unchanged on these goods and demand is seasonably light. Following are quotations:

BOILER TUBES—	Per 100 feet	
	Seam'less	Lapweld
1 inch	\$23 00	\$....
1½ inch	32 00	....
1½ inch	33 00	....
1½ inch	35 00	....
2 inch	35 00	30 00
2½ inch	38 00	32 00
2½ inch	45 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Plumbers' Oakum

Holds Unchanged

Toronto

OAKUM.—No changes are reported on plumbers' oakum, and selling prices

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For beauty of design, precision in manufacture and quality of materials, **MUELLER** Bibbs are unequalled—whether the construction be Compression, Rapidac, Fuller or Self-Closing.

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Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and
Aluminum; Die Castings in White Metal and Aluminum; also Screw
Machined Products.

are still \$4.75 per 50 pound bale, and 12 cents per pound for small quantities.

Waste Materials; Dull and Declining

Toronto.

WASTE MATERIALS.—The market is reported dull again this week and lack of interest is keeping the volume of business down. The easy situation in iron and steel industry is causing consumers of scrap to expect lower prices and quotations are more or less nominal. Non-ferrous scrap has been very dull. Prices are inclined to lower levels on account of poor demand. The following are average prices:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	19 00	20 00
Scrap pipe	8 00	9 00
eYellow brass	6 00	7 00
Red brass	10 00	
No. 1 machinery cast	24 00	25 00
Heavy melting steel	15 00	16 00
Heavy copper	10 50	11 50
Light copper	8 00	9 00
Scrap zinc	4 00	4 50
Light brass	4 00	4 50
R.Rd. wrought iron, No. 1, per gr. ton	13 50	14 50
Heavy lead pipe	4 00	4 50
Old rubbers, boots and shoes	0 03	0 04
Overseas lumbermen's rubber boots	0 02	0 03
Bicycle tires	0 01	0 01½
Automobile tires	0 75	1 00
Tea lead	2 00	2 25

Ingot Metals Inactive; Tin Shows Firmness

Toronto.

INGOT METALS.—There is not much improvement in the demand for ingot metals, and it is not expected that there will be very much change before the end of the month. An advance of nearly nine cents in pound sterling exchange rates exercised a strong influence on different metals, and tin and copper were among those to be principally affected. Lead shows a considerably stronger tone in outside markets, but there is a reported shortage of supplies.

TIN.—A little firmer tone is noted in tin and the rise in sterling exchange is having its effect on the market. Business however is dull and stagnant. Quotations have advanced to 48 cents.

COPPER.—Unchanged, but a better feeling expresses this metal. In outside markets there is stated to be an improvement in demand and opinion in the trade is that the market had turned the corner. Quotations on casting copper are unchanged at 19 cents.

LEAD.—While a firmer tone is reported in outside markets, movement is slow and a scarcity of supplies is evident, especially in Eastern markets. Local prices are holding at \$7.

SPELTER.—This metal is dull and unchanged, but London reports show an up trend. Quotations are unchanged here at \$7.75.

ANTIMONY.—This is reported as dull and unchanged and quotations remain at 8 to 9 cents.

ALUMINUM.—American markets show a continued easiness in aluminum but very little buying. Prices are held here at 37 to 39 cents.

WINNIPEG MARKETS

WINNIPEG, Jan. 13.—The tendency is for lower prices on many plumbing lines, and it is expected that there will be a gradual lowering on many goods that have remained firm for some time. Steam boilers, hot water boilers and radiators have been marked down in price this week, also black and galvanized iron sheets. Iron and steel are also showing lower quotations. Pipe prices remain firm, but it is expected that there may be a recession on this before long. Business is still quiet but an improvement is looked for in a few weeks.

Iron and Steel

Prices Reduced

Winnipeg.

IRON AND STEEL.—The manufacturers have lowered prices on iron and steel to stimulate trade, but it is not expected that any great change will be noticed for a while as regards sales nor will the prices be altered to any great extent. Following are new quotations:

BAR IRON—Round and Square.		Base
3-16, ¼ and 5-16 inch		\$7 00
¾ to 2 inch		5 75
2 to 3 inch		6 50
3 to 6 inch		7 00
Flat iron, sizes up to 1 x 4 inch		5 75
Do., over 1 x 4 in., up to 6 in. wide		6 50
Black band steel		7 00
Sleigh Shoe Steel—soft and mild—		
Round and square—		Base
3-16, ¼ and 5-16 in.		7 00
¾ in. to 2 in.		5 25
2 in. to 3 in.		6 50
3 in. to 6 in.		7 00
Flat—		
Up to 1 in. x 4 in.		6 25
Over 1 in. x 4 in., and up to 6 in.		6 50

Black and Galvanized Sheets Lower in Price

Winnipeg.

SHEETS.—Black and galvanized sheets are quoted at lower prices this week and are as follows:

Black Sheets—10 gauge, \$8.80; 12 gauge, \$8.80; 14 gauge, \$8.85; 16 gauge, \$8.95; 18 gauge, \$9.45; 20 gauge, \$9.45; 22 gauge, \$9.50; 24 gauge, \$9.50; 26 gauge, \$9.55.
Galvanized Sheets.—16 gauge, \$10.60; 18 gauge, \$10.75; 20 gauge, \$10.75; 22 gauge, \$10.90; 24 gauge, \$10.90; 26 gauge, \$11.05; 28 gauge, \$11.65.

Lead Pipe and Waste Prices Reduced

Winnipeg.

LEAD PIPE.—Lead pipe and lead waste pipe have been reduced in price this week and are quoted at the following prices: Lead pipe, \$12.96 per 100 pounds; lead waste, \$13.86 per 100 pounds.

Dart Unions

Lower in Price

Winnipeg.

DART UNIONS.—The prices on Dart unions have been revised and are somewhat lower. Following are the latest quotations:

¾ to 2 inch, 15 per cent. off list.
¾, 2½ to 4 inch, 5 per cent. off list.

Steam and Hot Water Boilers Lowered in Price

Winnipeg.

STEAM AND HOT WATER BOILERS.—The prices on these lines were withdrawn last week and it was thought

that higher prices would be forthcoming, but this week has brought forward lower prices on boilers and radiators and they are approximately 5 per cent. lower.

WORK ON INFILTRATION

GALLERY PROGRESSES

Moose Jaw, Sask.—Excavation for the southern portion of the infiltration gallery at Britannia Park is continuing and the first fifty feet south of the present pumping well has been piled and excavated to the clay, piling of the next fifty feet is in progress and with continued favorable weather should be soon completed.

The mild weather, with the exception of the few days around Christmas, made it possible for the work to be continued with very little interruption. The past fall has been one of the most favorable for outside construction that contractors have experienced in several years and work has been continued in almost every line.

DESERONTO MAY GET BIG CONCERN

Deseronto.—During the past couple of weeks efforts have been made to interest local capital in the opening of a factory for the manufacture of wire goods, stamped metal goods, automobile specialties, metal fittings, auger bits, wrenches, etc. The promoter's efforts to interest capital here has resulted in nearly \$12,000 being subscribed. Plans are to take over the machine shop and smithy, and secure for extension the old sash and door factory of the Rathbun Company. The company, which is incorporated by letters patent, has a capitalization of one million dollars. Head office will be in Montreal.

NEW CANADIAN PATENTS

(Continued from page 29)

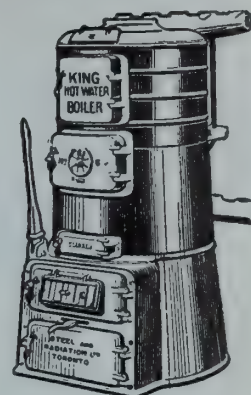
therethrough adjacent its lower portion, a smoke flue leading from said furnace, a secondary jacket positioned about said primary jacket, deflector plates carried by said primary and secondary jackets, the ends of said deflector plates being spaced apart out of vertical alignment with the openings formed through said primary jacket, a fresh air flue connected to the top of said secondary jacket, in vertical alignment with the top of said primary jacket, thus causing the cold air to be first injected on the top of the primary jacket and then deflected by said plates around the primary jacket and pass through the openings in the primary jacket and be heated by the furnace, hot air pipes leading from the primary jacket and cold air pipes communicating with the secondary jacket.

KING ^{HOT WATER} BOILERS ***AND*** ***IMPERIAL RADIATORS***



Steady Heat at Low Cost

There is no come-back when you install King Boilers and Imperial Radiators. Together they form the perfect heating system. With fuel high and hard to get and a long winter ahead you can win the gratitude of every household where you install the King Boiler.



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Sales Offices : Montreal, Toronto, Quebec

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Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery—technical paper advertising—to present most effectively to you the leading features of its line.

These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

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Pipe Fittings

Made in Canada



Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

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RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

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Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

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possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



They insure the best of service, and stamp any job on which they are used as well equipped.

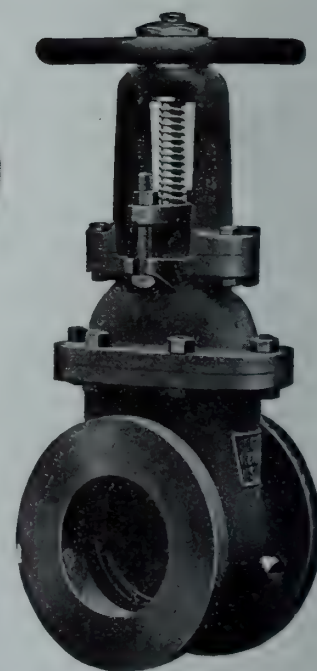
Use Kerr Valves. They give character to your work.

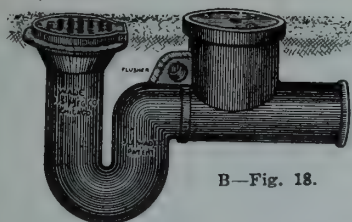
Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers

WALKERVILLE, ONTARIO





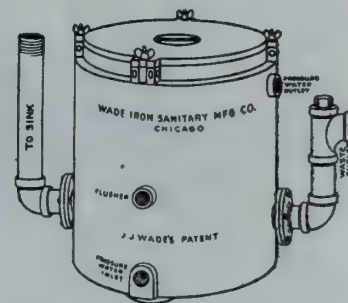
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.

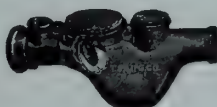
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St CHICAGO



B—Fig. 126.

Wade accessible flushing cleanout floor wash and backwater valve combination.



B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.



B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Send for Catalogue



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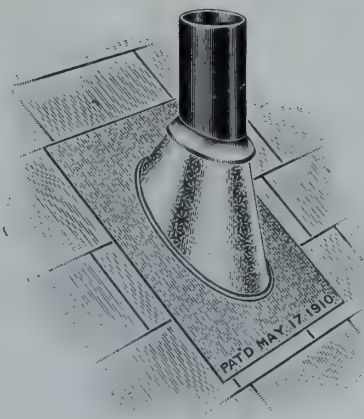
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Size**

Powerful Flame—No Pump Required—Burns Gasoline, Petrol or Benzoline.



National Pipe Hanger

Fits any size pipe — Strong, enduring, economical — Saves time and money—100 ft. Rolls—Easy to carry.



SIMPLEX

Adjustable Roof Flange

Made in
Galvanized with lead collar
Copper " " "
All Lead Sizes 1 1/4 to 6"

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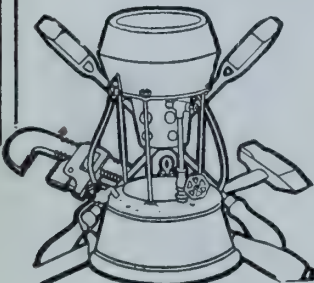
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Cutter— $\frac{1}{2}$ " to 2"

Use Beavers Threaders and Cutters

They're so much quicker, so much easier, so much handier—so very much better in every way.

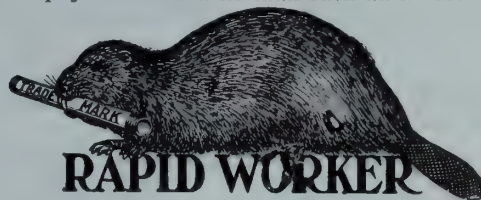
If you are a big pipe contractor, adopt the complete family of Beavers—die stocks and square-end pipe cutters. Nothing can pay better returns than such an investment.



No. 25—1" to 2"

If yours happens to be a newer, smaller shop, adopt part of the Beaver family, not forgetting the little Beaverette which threads from $\frac{1}{4}$ -in. to $\frac{3}{4}$ -in. pipe without changing dies—two sets of dies on one cam plate.

Borden-Canadian Co.
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Sells With Little Effort

Desolvo is so well known among housewives for the speedy way it cleans up drain pipes, that no effort is necessary to sell it.

Desolvo makes good for the dealer because every home needs it, in quantities and often. It is actually consumed so that you have a continuous and growing demand.

Ask about K. K.



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109 Church Street, Toronto
General Offices: Pittsburg, Pa.

JARDINE and TOLEDO PIPE-THREADING TOOLS

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or gimcracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.



"Toledo" Geared Adjustable Threading Tool.
No. 2 $\frac{1}{2}$. Capacity 2 $\frac{1}{2}$ to 6 in. inclusive.
Weight 120 lbs.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools
in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.

Brockville and East—J. R. Devereux, 358 Beaver Hall Square,
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The Publisher's Page

TORONTO

JANUARY 15, 1921

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The quality may be judged by the methods of obtaining subscriptions.

The quantity may be known absolutely by an independent and expert audit of the circulation records.

Both points are covered by the reports of the Audit Bureau of Circulations.

The advertiser who buys space on a business basis asks for an A.B.C. statement and studies it.

If an advertiser who does not demand an A.B.C. statement conducted the other branches of his business on the same method, he soon would not have any business to conduct.

An advertiser is entitled to the facts. An A.B.C. paper has nothing to hide.

Sanitary Engineer is the only Plumbing, Heating and Tinsmith publication in Canada that has submitted its circulation to the Audit Bureau of Circulations for an A.B.C. Audit.

SANITARY ENGINEER PLUMBER *and* STEAMFITTER *of* CANADA

143-153 University Avenue
Montreal Branch, Southam Bldg.

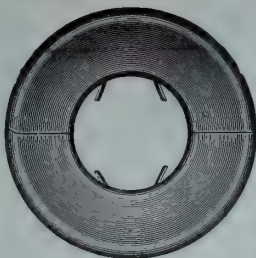
TORONTO, CANADA
Winnipeg Branch, Union Trust Bldg.



OPEN VIEW
NO. 10-A

The
CEILING
PLATE

that's
better



TOP VIEW
NO. 10-A

THE NO. 10-A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES $\frac{3}{4}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



Gem No. 4.



Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

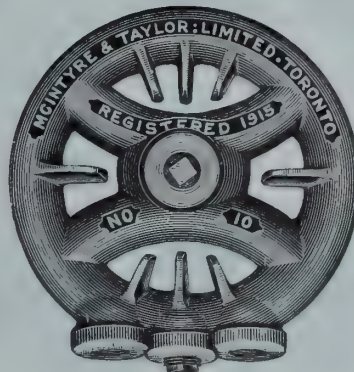
Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

Maximum

Heat From Good Design



Design successfully influences M & T Coils in producing perfect circulation through liberal waterways with danger of chokage eliminated. The most extended heating service of any coil its size, makes it a splendid hot-water producer. Made from sound, clean grey iron castings, free from sand and blowholes. Durable and fully guaranteed.

McIntyre & Taylor Limited
TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Storage Tanks
Hot Water Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

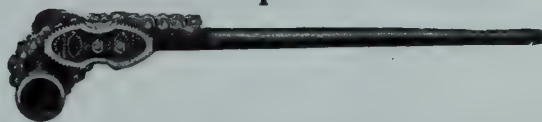
WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
105 Ritchie Ave.
TORONTO

Practically all good buyers of Plumbing and Heating supplies in Canada are readers of Sanitary Engineer, Plumber and Steamfitter of Canada.

Williams' Improved "Vulcan" Drop-Forged Chain Pipe Wrench



FEW tools are called upon to stand greater strain and harder wear than the pipe wrench. Because Williams' "Vulcan" Chain Pipe Wrenches have withstood every test during years of hard, continuous service under all conditions, they have earned a well-deserved reputation for dependability, and are favorably known the world over. They embody every good feature for which Williams' Superior quality stands.

Made in 8 sizes for $\frac{1}{8}$ to 18 inch pipe. All Flat Link Chains are "proof-tested" on a standard tension machine and "certified." Every wrench is unconditionally guaranteed. Ask for our descriptive Booklet of Pipe Tools.

J. H. WILLIAMS & CO.
LIMITED
"The Wrench People"

Formerly Canadian Division of The Whitman & Barnes Mfg. Co.
77 Thorold Road, St. Catharines, Ont.

W. Bruce Campbell, Western Agent, 77 Confederation Life Bldg., Winnipeg

HOYT

WIPING SOLDER

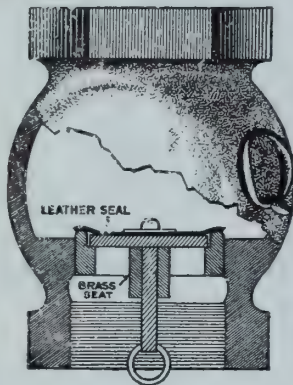
Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL

TORONTO

WINNIPEG



This is a
“Q”
 Foot Valve

And it Just **CAN'T** Leak

There are more pump troubles caused by “leaky” valves than from all the wear and tear which occurs in the average life of a pump.

The “Q” valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that **JUST CAN'T LEAK.**

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
 GALT, CANADA

SAFETY FIRST USE WOLVERINE THAWING STEAMER FOR THAWING FROZEN PIPES



Made from
HEAVY COPPER
 and equipped with
SAFETY VALVE

THAWING HOSE

Extra Quality, Smooth
 White Rubber, with
 Heavy Wall and

Thawing Hose Connection

for coupling and
 lengthening hose.

Listed Catalogue “C”

BE PREPARED—ORDER NOW

WOLVERINE

—LIMITED—

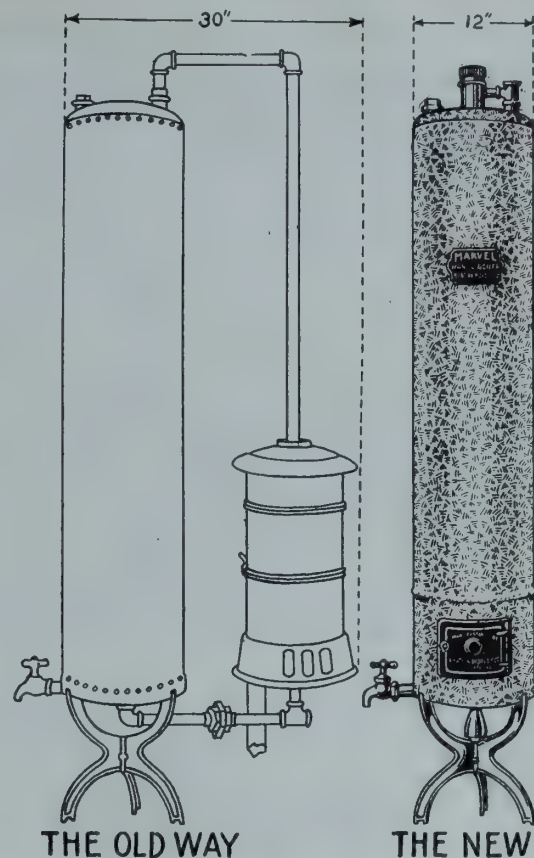
76 NELSON ST., TORONTO

YOU ARE RESPECTFULLY REQUESTED TO SPECIFY
RIVETED RANGE BOILERS
and
CAST IRON SOIL PIPE AND FITTINGS

Manufactured by
TORONTO HARDWARE MFG. CO., LIMITED

INDEX TO ADVERTISERS

Allison, K. B.	42
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Atlas Tank Works	45
Bastian Morley, Ltd.	47
Beaton & Cadwell	45
Beaton & Corbin	48
Borden Can. Co., Ltd.	43
Canadian John Wood Mfg. Co., Ltd.	4
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Iron Co.	48
Chamberlain Desolve Co.	43
Cunningham & Co., W. H.	41
Dominion Sheet Metal Corp., Ltd.	1
Empire Manufacturing Co.	Outside front cover
Fittings, Ltd.	48
Galt Brass Co.	Back cover
Greenfield Tap & Die Corp.	7
Hamilton Stove & Heater Co.	48
Hause Mfg. Co., Chas. F.	48
Hoyt Metal Co.	46
International Malleable Iron Co.	38
Jardine & Co., A. B.	43
Kerr Eng. Co., Ltd.	38
Lord & Burnham, Ltd.	12
Marks & Co.	48
McDougall & Co., R.	46
McIntyre & Taylor, Ltd.	45
Ministry of Munitions	3
Morrison Brass Mfg. Co., Ltd., Jas.	6
Mueller Mfg. Co.	35
Port Hope Sanitary Mfg. Co.	24-25
Spencer Heater Co. of Canada, Ltd.	8
St. Louis Technical Institute	39
Standard Sanitary Mfg. Co.	9
Steel & Radiation, Limited	39
Toronto Hardware Mfg. Co.	46
United Brassfounders & Engineers, Ltd.	41
Wade Iron & Sanitary Mfg. Co.	39
Warden-King, Limited	5
Westco Pumps, Ltd.	6
Williams & Co., J. H.	45
Wolverine, Ltd.	46



THE old style side arm combination was as inefficient as candle light. It was awkward, a gas-eater, slow, heated more air than water, and, like the candle, it has given place to the new and better way.

M **GAS WATER**
HEATER
Marvel
Gas Heater and Boiler Combined

is delivered on the job completely assembled, and, with the addition of a single gas connection, is as quickly and easily installed as an ordinary range boiler.

It heats water quickly, with little gas. Is odorless, silent, safe. Brings back no complaints, avoids adjustment losses.

Made of extra heavy material. In all sizes. Tested to 150 pounds under working pressure, and guaranteed for two years. It's the best non-automatic water heater made. Write direct, or to your jobber, for prices and literature.

Made in Canada

Sold and installed by plumbers exclusively

BASTIAN-MORLEY LIMITED

Makers of Automatic and Non-Automatic Gas Water Heaters

Hanson Street and Hillingdon Avenue
TORONTO, CANADA



Wrought Pipe

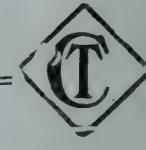
The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal



FITTINGS LIMITED



Manufacturers of
**MALLEABLE and CAST IRON
PIPE FITTINGS**

OSHAWA

No. 4 B. & C. Automatic Radiator Air Valve Fully Tested

Our Automatic Radiator air valves are fully tested before being shipped to the customers. They are made from the best brass with cast brass base. Screwed and soldered on. Satisfaction is assured when "B. & C." valves are used.

Write for Catalogue

The Beaton & Corbin Mfg. Co.
Southington, Conn.

Stocks carried by our Canadian Representatives
Canadian Representative: W. H. Cunningham & Co.
269 Richmond Street West - Toronto, Ontario



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers

Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.

Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

When Writing to Advertisers
Kindly Mention this Paper

FOR SALE—PLUMBERS' SUPPLIES OF ALL
makes, at prices that protect the plumber.
American Plumbers' Supplies, 14 Craig St. West,
Montreal.

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

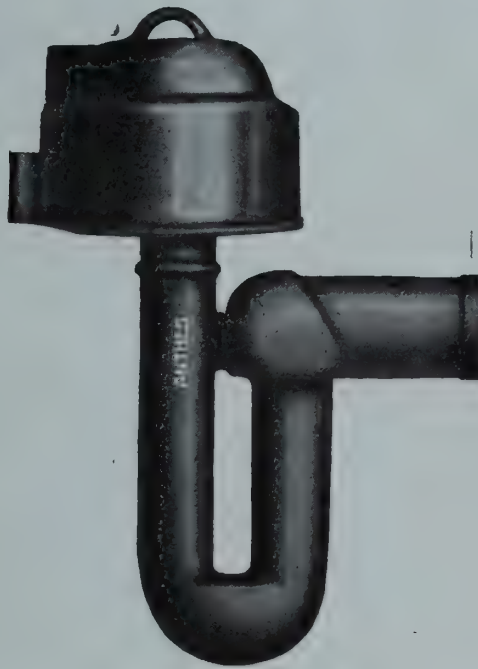
HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA



Reduced Prices

Should Stimulate Business

Get in touch with those farmers in your vicinity who have no water and sewage installations.



Induce them to consider the advantages of running water and modern conveniences.

Prices may rise again, so get busy now

ANTHES FOUNDRY, LIMITED

Manufacturers

Cast Iron Soil Pipe and Fittings

JEFFERSON AVENUE
TORONTO

SASKATCHEWAN AVENUE
WINNIPEG

VITRO

NOTROUBLE
TANK

For Your Satisfaction Insist on Vitro

ONE item in the long list of Vitro superiorities is the special, non-porous composition from which Vitro Tanks are so carefully molded.

An important item, it is true, but not the *sole* reason why Vitro has earned the title "No Trouble Tank."

The people and the plumbers of Canada know that their satisfaction and profit have depended on the selection of the Vitro Tank. They *should* know that the name Vitro implies a *complete tank*, fittings included, that years of experience have perfected.

It is this complete Vitro Tank that has made thousands of dollars for Canadian plumbers in the past, and it is this complete Vitro Tank that must continue to do so in the future.

There is only one Vitro Tank. It is made from start to finish to eliminate trouble. And it is made exclusively in Canada by

**Galt Brass Company
Limited**

Galt

Canada



VITRO
MAHOGANY
COMBINATION

Sanitary Engineer

Plumber and Steamfitter of Canada

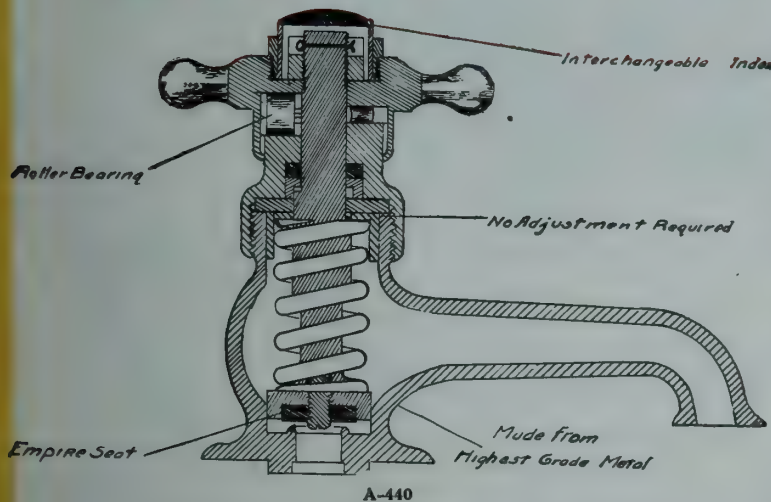
VOL. XV.

PUBLICATION OFFICE, TORONTO, FEBRUARY 1, 1921

No. 3

EMPIRE

Products Cover Canada



*"If it's an EMPIRE product
you know it's right"*

THIS EMPIRE self-closing basin cock is a universal favorite on account of its improved design. By reference to the sectional illustration its superior points may be noted and appreciated.

Rollers are made of specially hard nickel alloy and will last a lifetime.

Its use in connection with the hot water side of systems will result in a great saving of hot water and fuel. It cannot rust and will wear much longer than the ordinary basin cock.

We make a complete line of sanitary fixtures and plumbing supplies. Jobbers everywhere handle EMPIRE products, and your needs will be given prompt attention.

Empire Brass Mfg. Co., Limited

LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:

E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 295.

Clip this for Reference

STOCK SIZES for PROMPT SHIPMENT



GALVANIZED STEEL SHEETS

GAUGES—14-16-18-20-22-24-26-28—10 $\frac{3}{4}$ oz.

WIDTHS—24-in., 30-in., 36-in.

LENGTHS—60-in., 72-in., 84-in., 96-in., 108-in.,
120-in.

GALVANIZED SHEETS (RUST-RESISTING)

GAUGES—12-14-16-18-20-22-24-26-28.

WIDTHS—30-in., 36-in.

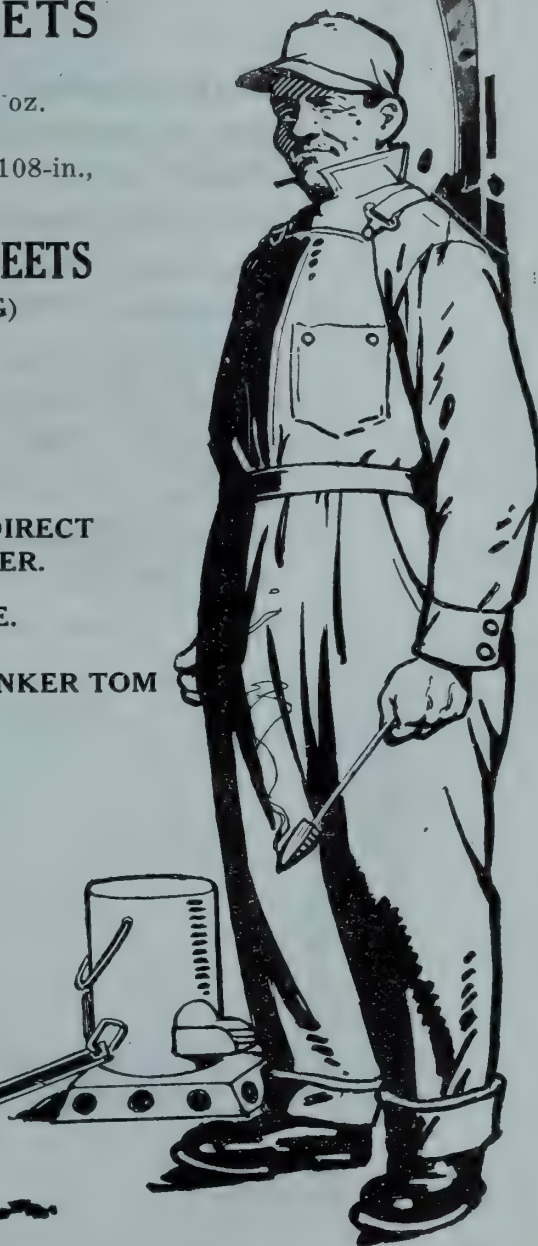
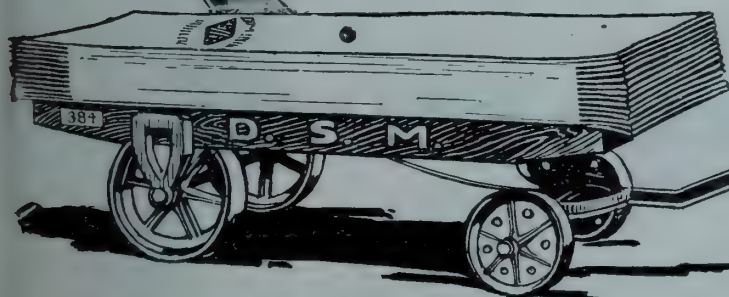
LENGTHS—60-in., 72-in., 96-in., 120-in.

WE DO NOT SELL BLACK SHEETS.

THIS STOCK IS AVAILABLE FOR DIRECT
SHIPMENTS ACCOUNT OF ANY JOBBER.

SAVE TIME—TROUBLE—EXPENSE.

TINKER TOM





Lieut. N. Bruce Wilson

A Little
"Straight Talk"
to the Canadian
Plumbing Trade

Introducing to the readers of this journal our new representative covering Eastern and Northern Ontario, effective February 1st. Mr. Wilson has had experiences over the last ten years that will be interesting from time to time to our customers on his territory. For some years he was connected with the Works Dept. of the City of Toronto; four years with H. E. Talbot Co., Engineers and Contractors, of Dayton, Ohio; three years spent overseas, while last year he has devoted his time to the re-arrangement of a Municipal Water Works System. We bespeak for him the same kindly interest shown our former representative, Mr. J. S. Clemens.

Yours always,

For efficiency and service,

CANADIAN BRASS COMPANY
LIMITED
GALT :: TORONTO

RANGE BOILERS

Electric Weld

The Kind With No Rivets to Leak

The strength of a range boiler is in the thickness of the shell and in the character of the seams. The Electric Weld Quality range boiler is all boiler—rivets, solder, laps, and other unnecessary materials, are not needed to "bolster up" the Electric Weld Quality range boiler.

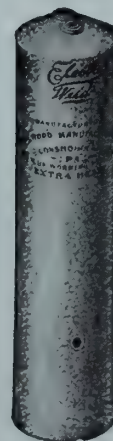
No holes are punched or drilled to weaken the shell. In fact, in the Electric Weld the seam practically ceases to be a seam; it is a solid union of metal. It is 96% efficient—a higher efficiency than any other character of the seam.

Complete Strength in the Electric Weld

It is the modern, efficient way to make the joint. A test sample, which contained an electric weld, parted only at a breaking strain of 54,120 lbs. per square inch—the electric weld remains intact!

Every One is Fully Guaranteed—Get That?

Standard Size—For New Work or Replacement



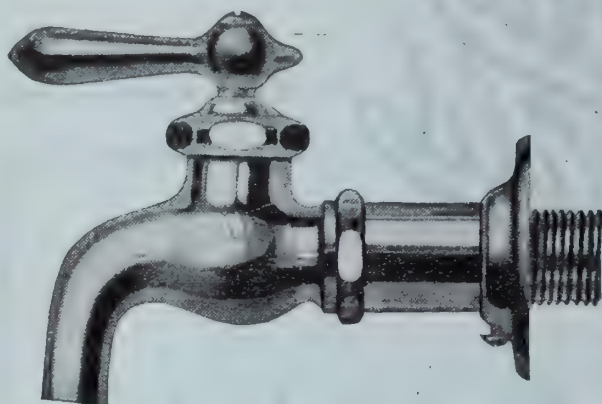
**Canadian
John Wood Mfg. Co., Limited**

Grand Trunk Railway and Hillingdon Ave.

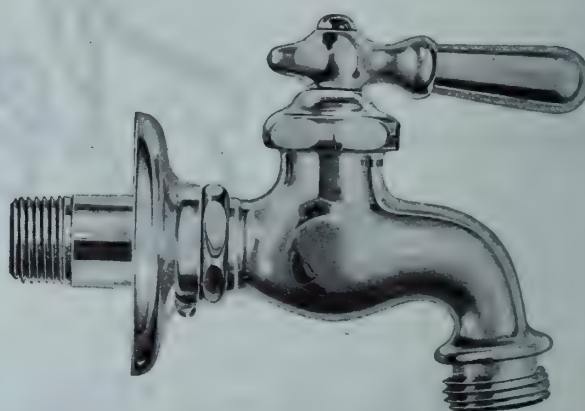
Toronto, Ontario

Sink Faucets

*The Kitchen is the Power Plant
of Family Life*



A1000



A1002

Until recent times it represented the drudgery of family life. It was the fountainhead of family discord, the scene of overwrought nerves and exhausted bodies.

The "Moss-covered Bucket" and the "Well Hook" surrendered to the Pump, which was more of a variation than improvement—the lugging still remained.

Then came the modern Water Power Systems, bringing sparkling water out of the well, or the live stream, or down from the mountain side and delivering an ever-flowing supply into the modern home.

Then the White Enamel Sink with the shining quick-opening Faucets complete the miracle of an instantaneous, unlimited water supply—life's prime essential—"Hot" or "Cold" as you prefer, help yourself, a dipperful or a barrellful, it's all the same.

Install with the modern white enamel sink the modern stoutly-designed, highly-finished, quick-opening Quatern Faucet, pull the lever towards you one-quarter turn and there you are, a full rushing stream of crystal water. To close, shove the lever from you one-quarter turn, the pressure helps you, there close with the pressure.

The working parts of these Faucets are interchangeable and replaceable.

The Faucet with hose connection on the "Cold" line supplies the juice also for the water power clothes washer.

These Quaterns are the last word in Faucets, they are the demonstrators, speak for themselves, and bring the plumber another job from the "folks next door" before he leaves the neighborhood.

THE WALLACEBURG BRASS & IRON MFG. CO., LIMITED

WALLACEBURG, ONT.

Toronto

Mr. L. N. Vanstone, 10 Wellington St. East
Telephone Main 2355

Winnipeg

Moncrieff & Endress, Ltd., Galt Bldg.
Telephone Garry 3389

Montreal

J. R. Devereux & Co., 58 Beaver Hall Square
Telephone Uptown 4441



Sturtevant

REG. U.S. PAT. OFF.

PUTS AIR TO WORK

In the new buildings of the foremost engineering school of the United States

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

the greatest care was given to the selection of all mechanical equipment. It is a significant fact that for the heating and ventilating systems

Sturtevant

(TRADE MARK)

service was chosen.

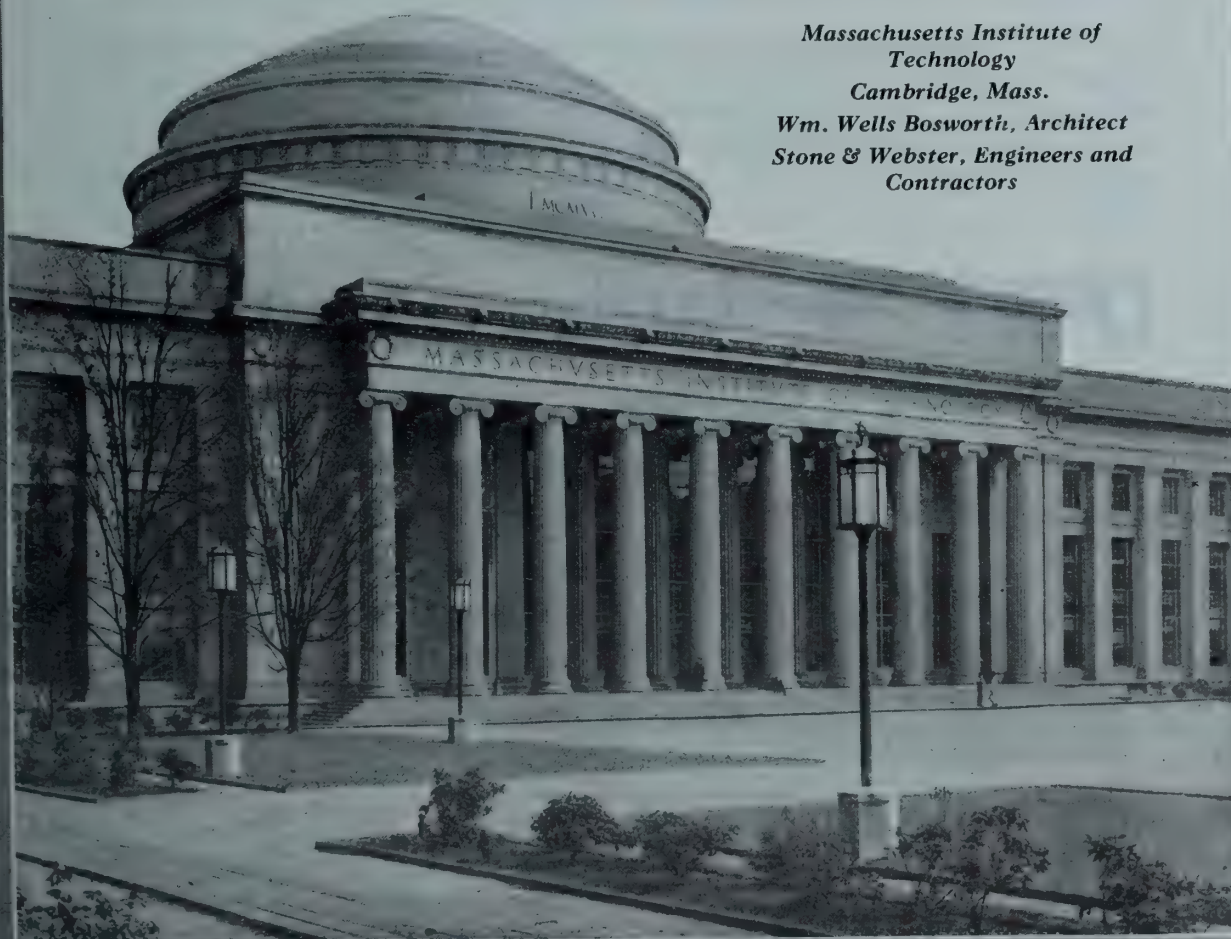
B. F. STURTEVANT CO. OF CANADA, LTD.

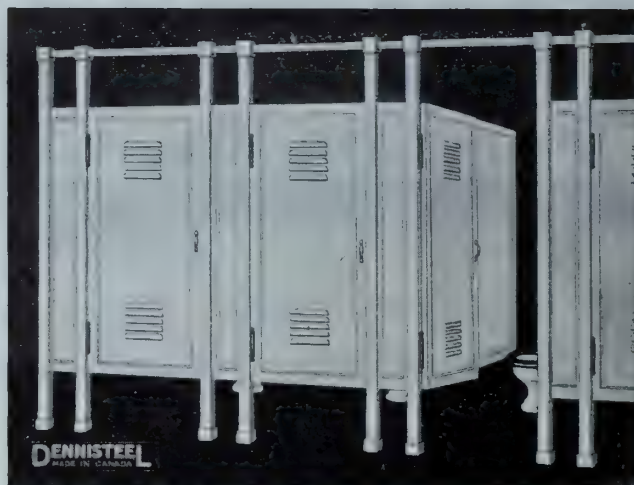
MAIN OFFICE AND WORKS: GALT, ONT.

SALES OFFICES: TORONTO AND MONTREAL

*Massachusetts Institute of
Technology
Cambridge, Mass.*

*Wm. Wells Bosworth, Architect
Stone & Webster, Engineers and
Contractors*





No Need To Ask How Could A Steel Lavatory Compartment Be Mis-shaped or Defaced

If it is a Dennisteel Lavatory Compartment it can't be defaced or mis-shaped. Its test in many of the largest schools, public buildings, factories, etc., has proven that beyond a doubt. The Steel Lavatory Compartment presents a smooth enameled surface that cannot be nicked or chipped. Pencil marks can be removed with an application of soap and water.

DENNISTEEL *Made in Canada* **Lavatory Compartments**

"Hygienic — Fireproof — Non-Destructible"

WE ALSO MAKE

Steel Lockers, Steel Cabinets, Steel Shelving, Steel Bins,
Steel Chairs and Stools.

Ornamental Iron and Bronze.

Commercial Iron Work of all kinds.

General Builders' Ironwork.

Write for Folders

THE DENNIS WIRE AND IRON
WORKS CO. LIMITED
LONDON
CANADA

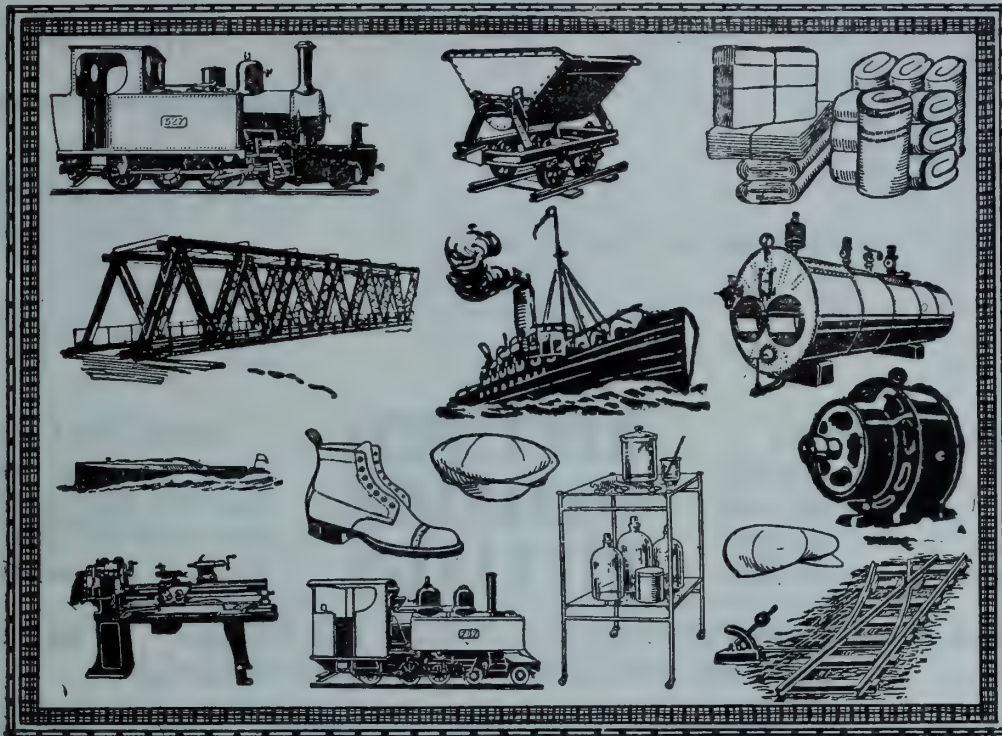
HALIFAX
OTTAWA

MONTREAL
TORONTO

HAMILTON
CALGARY

WINNIPEG
VANCOUVER

MINISTRY of G R MUNITIONS



THE DISPOSAL BOARD HAVE

STOCKS

LYING IN THE UNITED KINGDOM
AND
AVAILABLE FOR EXPORT
OF
ENGINEERING STORES

Ferrous and Non-Ferrous Metals	Medical Stores
Plant and Machinery	Chemicals and Explosives
Steam Engines and Boilers	Motor Vehicles
Factory Stores	Agricultural Machinery
Machine Tools	Aircraft
Railway Material	Furniture
Electrical Instruments and Machinery	Textiles and Clothing
	Motor Boats, etc., etc.
	Boots and Leather Equipment

Buyers should instruct their representatives in the United Kingdom to communicate with the Secretary, Disposal Board, Ministry of Munitions, Caxton House, Tothill Street, London, S.W. 1.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."



Pipe Fittings

Made in Canada



Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS

With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

KERR VALVES

possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



They insure the best of service, and stamp any job on which they are used as well equipped.

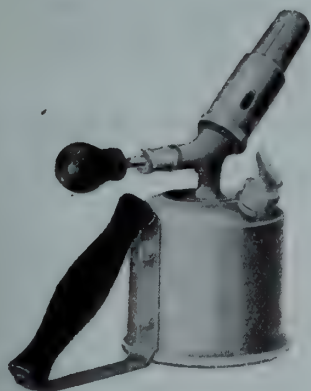
Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers
WALKERVILLE, ONTARIO





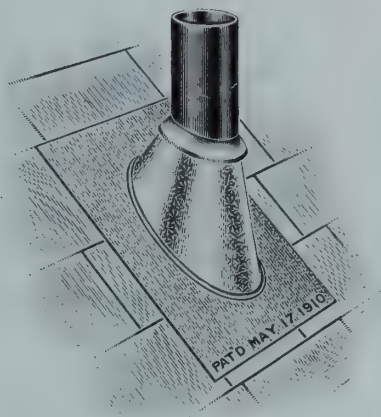
**English Blow Torch
2-3 Pint Size**

Powerful Flame—No Pump Required—Burns Gasoline, Petrol or Benzoline.



National Pipe Hanger

Fits any size pipe — Strong, enduring, economical — Saves time and money—100 ft. Rolls—Easy to carry.



SIMPLEX

Adjustable Roof Flange

Made in

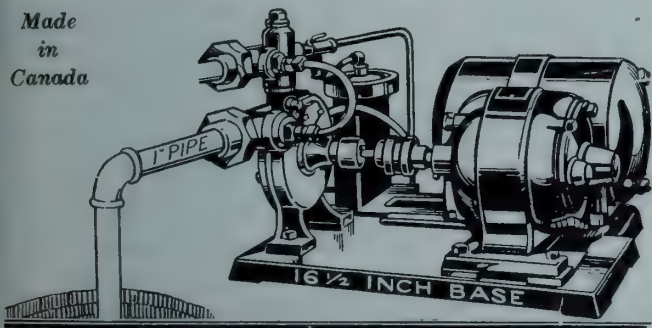
Galvanized with lead collar
Copper “ “ “
All Lead Sizes 1 1/4 to 6"

Deliveries from Stock—Ask your Jobber or write us.

W. H. CUNNINGHAM & COMPANY
269 WEST RICHMOND STREET. - TORONTO, ONT.

(Exclusive Agents Plumbing and Heating Specialties)

Made
in
Canada



**Sell
Westco
Tankless
Water Systems**

***Running Water Badly Needed in Rural
Districts — The Westco Fills the Need***

**AGENTS MAKE GOOD
PROFITS**

Our agents are making splendid commissions. The farmer is deeply interested to begin with, and the talking points of the Westco are without number. You, too, can make good money selling this water system.

Write us.

Every farmer or rural resident having electricity on his farm or premises is a splendid prospect for the Westco Tankless Water System. Running water is one of the most urgent needs in the country to-day.

Farmers everywhere are demanding a good water system—and the Westco fills the need perfectly. There is big money in it for you. The field of operation is enormous. There is the whole of the vast rural areas, and suburban and outlying parts of cities and towns. It is a proposition replete with possibilities.

The Westco requires no storage tank—water is pumped direct from source of supply to taps. Entirely automatic; open tap, pump starts; close tap, pump stops.

Simple to understand, and is self-lubricating. Inexpensive to buy, maintain and operate.

No gear, no valve, no belt—only one moving part in the entire system—the impeller.

Above all—thoroughly reliable.

Westco Pumps Limited, 707 Yonge Street, Toronto, Ontario

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV,

TORONTO, FEBRUARY 1, 1921

No. 3

CONTENTS

Urge National Housing Commission	13
Combined Drain Is More Effective	14
Combination Heating System	15
Selling Women Plumbing Fixtures	16
The Question Box	17
Practical Helps For Tinsmiths	18
Pulling Publicity For Plumbers	19
Sewage Disposal For Small Communities	21
Editorial Comment	22
New Plumbing Goods	23
Improvement Noted in Building	26
News From Here and There	27
Current Market Quotations	28

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C.M.C.THE MARK OF
QUALITY**C.M.C.**THE MARK OF
QUALITY

“PUSSYFOOT” Closet Tanks

This Pussyfoot Tank is guaranteed to the extent that no matter how many years it has been in use, if a fault of material or workmanship shows, we will replace with a new tank.

The defective tank must be sent to us for inspection.

The “Pussyfoot” Closet Tank is the newest and most up-to-date tank on the market.

It combines skilled design with handsome finish, and satisfies customers with its efficient service.

The “Pussyfoot” costs no more than ordinary closets, and is fully guaranteed. Silent, trustworthy, and durable.

We can supply you with Iron Pipe and Fittings; All Brass Goods;

Sheet Lead;
Bar or Wire
Solder;
Lead Pipe; Block
Lead; Baths; Lava-
tories; Sinks;
“Aristocrat”
Laundry Tubs;
Basins, and in fact
everything for the
plumber.

The Canada Metal Company

MAKERS

Toronto

Montreal

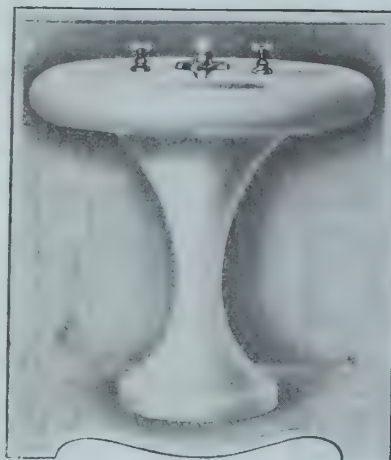
Winnipeg

Vancouver

Specify “Pussyfoot” and “Aristocrat” to your jobber.

"Standard"

PLUMBING FIXTURES



Building Bigger Better Business

To build a successful business the plumber must have the complete confidence of his customers. The careful installation of plumbing fixtures in new houses or in replacing out-of-date fixtures in old homes does much to establish you in your town or community as a dependable artisan. Let us co-operate—work together in building a bigger, better business.



The Home of "Standard" Fixtures

Standard Sanitary Mfg. Co.

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

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55-59 Richmond Street East

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358 Beaver Hall Square

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76 Lombard Street

Calgary:
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Hamilton Store
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"MADE IN CANADA"

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

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TORONTO, FEBRUARY 1, 1921

No. 3

Urges National Housing Commission

Measures for Relief of Housing Shortage Discussed at Annual Meeting of Canadian Building and Construction Industries—
Approve Formation of National Joint Conference Board—
Welfare of Country Depends Upon Revival of Building.

(By Special Correspondent of Sanitary Engineer)

WINNIPEG, Man.—In view of the outstanding importance to the Canadian plumbing trade of any movement presaging a renewal of activity in the building industry, the proceedings at the convention of the Association of Canadian Building and Construction Industries, just completed in this city, are of interest. It is a recognized fact that for some years there has been a marked scarcity of housing accommodation in practically every Canadian city, but the urgent need for housing has not been sufficient to move contractors from their inertia due to the fact that building costs have been too high to make building profitable. Meanwhile the condition has become more acute, and Governmental action is called for in order to bring relief.

A proposal that the Federal Government should be urged to float a \$250,000,000 housing loan by the sale of Government bonds was considered at the convention. Another important point which received attention was the proposed establishment of an apprenticeship system in the building trades throughout the Dominion. Both questions were favorably reported upon by the National Joint Conference Board, formed as result of discussions with representative labor men and committees were struck to bring in definite resolutions regarding them.

In reports of committees as submitted, it was pointed out that claims made to the Government by the association had been recognized.

National Housing Board

At the close of the session a resolution to the effect that the Federal Government should make money available for housing purposes, and that it should form a National Housing Board on which the workers should have representation, was passed. The convention urged that the Housing Board should act as the agent of the Government in investigating and recommending appropriations and make money available through well-established loan companies.

The report of the standard practices committee, favoring the use of Canadian materials in building construction work, was adopted.

Approval was given the standing committee of labor in entering into an arrangement with labor men for the formation of a national joint conference board.

Mayor Edward Parnell emphasized the im-

portance of following the principle of the square deal on the part of the employer and the determination on the part of the worker to do what he could to help matters. Premier Norris spoke briefly on the natural resources of the West in materials required for building.

Building Activity Predicted

President J. P. Anglin gave his address at the afternoon session. He stated that comparatively little construction work had been done in Canada since the war started, and expressed his belief that the greatest building period in the history of the country was about to be entered upon. Whether it was realized or not, the very welfare of the country depended more on a revival of building activity than on any other single factor. "Think of the mines, forests, mills, industries, railroads and ships that are kept going when we are all working at full capacity." Regarding general overhead, job overhead and unit labor costs, he believed that probably the peak had been experienced for this generation. The same could also be said in all probability of building costs. Most of the responsible concerns were getting even with the game, and there was a tendency already toward a reduction of prices.

Activities of Labor Committee

R. J. Fuller reported on the activities of the labor committee and detailed the efforts that had been made to get on a harmonious working basis with the representatives of labor, as a result of which the National Joint Conference Board had been created. With reference to the proposed establishment of an apprentice system, Mr. Fuller said there were three main points: Number of apprentices, assistance in arranging and training, and hours to be devoted to technical training.

Moving the resolution on housing, which was finally adopted, President Anglin pointed out that provision was made for an owner to make use of his own labor in constructing his house, that the owners would be encouraged to build on their own individual lots, that the maximum value of the house on which a loan might be granted was \$8,000 (although he had originally favored \$10,000), and that loans could be available for duplex and three-flat houses. He was strongly of opinion that the money should be made available through the existing channels, which were the loan companies.

Combined Drain is More Efficient Than Single Drain—Fall of 1 in 30 is Sufficient Gradient—Notes of English Sanitary Proceedings.

By J. STUART KING, A.M.I.C.E., M. Inst. M. & Cy. E., District Surveyor, Birmingham.

SOME interesting notes on domestic drainage have been made from proceedings at the Royal Sanitary Institute, London, England.

The system of drainage is usually laid down by the local authority; if all rain water must be kept from the sewage drains, these are not so well cleansed and there is also the danger of water course pollution through the improper use of rain water gullies.

The present state of the law makes it difficult for many local authorities to permit two or more houses to be drained by one drain. Various authorities including Birmingham have obtained powers in their Local Acts, and with present day prices the saving is greater than ever. A properly laid combined drain should work more efficiently than a drain from one small house, and the initial outlay is much smaller.

Interceptors are still necessary in most towns and serve useful purposes, but one interceptor on a combined drain should be sufficient for the whole block of houses.

With present day prices and the necessity of keeping the cost of houses down no manholes should be constructed unless they serve a useful purpose, otherwise it is insurance against an accident that may never arise. Manholes sometimes aggravate nuisances owing to their ability to store sewage.

There have been great improvements in drainage work in the last 20 or 30 years, but, like all work that is hidden, there is a danger of scamping if inexperienced men are employed without good supervision; all drains should be tested with water when laid and again at the completion of the house. A district that requires good drains for new houses soon acquires a satisfactory reputation. A good drain will last longer than the house but a badly laid one will cause trouble sooner or later.

It is necessary to provide drains sufficiently deep to drain the lowest floor of a building and cellars should not be constructed where they cannot be efficiently drained.

The requirements of the usual building by-laws are on the right lines and if intelligently followed will lead to good work. In some cases amplification in small details would be an advantage, and such points as the weights and method of jointing soil and vent pipes, the provision of rust boxes at the foot of vent pipes might be inserted. A vent pipe that does not carry sewage without a rust box at the foot rapidly becomes useless.

It is to be regretted that many water authorities do not sanction three-gallon flushing cisterns, as the additional gallon is a great help in flushing a small drain.

Owners of houses should keep an accurate plan of their house drains and these should be transferred with the deeds when houses are sold. If owners would have their drains superficially examined, and well flushed at regular periods, they should have very little trouble with them.

Favor Three-Gallon Flushing Cistern

Mr. Robert Green (Birmingham) desired to pay his tribute of appreciation of the manner in which the author had prepared his paper upon a subject which he considered one of the most important in connection with the erection of dwellings, especially those of the smaller class properties. He endorsed the author's recommendation. He considered that

in many cases a three-gallon flushing cistern would result in less waste, as it might render unnecessary the cistern being used more than once each time the W.C. was used. The flush pipe should not be less than $1\frac{1}{4}$ or $1\frac{1}{2}$ inch diameter, and that drains should, where practicable, be laid with a gradient resulting from a fall of $\frac{3}{4}$ inch to each pipe. He emphasized the importance of rust boxes to ventilating shafts, which should be of cast iron with a strong wrought iron handle, and the shaft should be of wrought iron and not steel.

Fall of 1 in 30 is Ample Gradient

Mr. John Parker (Hereford) said that as to the size of the drains a good deal depended upon the gradient. A long experience had convinced him that a fall of 1 in 30 was ample. A novel event had just occurred in Hereford, where a contract for 232 houses was now being carried out, and by some peculiar process of reasoning, the bricklayers had come to the conclusion that the laying of house drains was the work of bricklayers and not expert drain layers. Some laborers, who had become very efficient in such work, were now objected to, as they were not members of the trades' union, although bricklayers had not previously been trained to such work. A

Continued on page 23

Annual Meeting of Master Plumbers

Toronto Society D. S. & H. E., Re-elects Most Officers of Last Year—Plumbing Business Quiet—No Move to Attract Apprentices Till Business Improves.

THE annual meeting of the Toronto Society Domestic Sanitary and Heating Engineers, deferred from the usual date in December until the January regular meeting of the society, resulted in the return of practically all the officers elected last year. Results of the elections were as follows:

President—George Clapperton.
Vice-President—Roy Belyea.
Treasurer—Thomas Maxwell.
Secretary—Garrett F. Frankland.
Auditors—Messrs. W. A. Lord, D. Norwich, F. A. Wiles.

Executive Committee—G. R. Baker, C. H. Chapman, F. H. Gentle, J. Hall, G. Lynch, M. T. Rodwell, H. A. Weinraub, John Wright, R. A. Pratt, all of Toronto.

Very little discussion of matters other than pertaining strictly to the routine of the regular meetings was indulged in. Members of the society agreed that business generally in the plumbing trade is quiet. While action is being taken by the building industries to get action on the part of the Federal Government to relieve the housing situation by providing a loan to encourage builders, no supporting action is being taken by the plumbers' association locally at the present time. It is thought that the Federal Government will be slow to move in dealing with this situation and that probably the provincial administration would be a little more sympathetic.

Night classes of instruction are still being held at the Technical School in Toronto for apprentices in the plumbing and heating trades, but little effort is being made to attract more apprentices or to enlarge the scope of the technical education at least until business becomes more active.

UNIFORM PLUMBING REGULATIONS DESIRED

Brantford. — President George Broomfield, of the Ontario Plumbing and Drainage Inspectors' Association, announces that that body, which convenes here in February, would take action to appeal to the Legislature for uniform legislation on plumbing regulations and inspections. At present each municipality makes its own, and there is much confusion.

Heating and Ventilating

Combination Heating Systems

Second article of an important series written exclusively for Sanitary Engineer by
N. A. Kearns.

Continued from last issue

Exposure: N.E.
Bed room:—
Cube: 1,136 feet.
Wall: 200 feet.
Glass: 24 feet.
Exposure: S.W.
Bed room No. 2:—
Cube: 968 feet.
Wall: 120 feet.
Glass: 24 feet.
Exposure: S.
Bed room No. 3:—
Cube: 960 feet.
Wall: 96 feet.
Glass: 24 feet.
Exposure: N.
Bath:—
Cube: 256 feet.
Wall: 96 feet.
Glass: 9 feet.
Exposure: E.

All rooms on the ground floor, with the exception of the kitchen, should be figured for a temperature of 70 degrees above zero when the outside temperature is 10 degrees below. Allowance should be made for two changes of air per hour

in the dining and living rooms. One change is enough to allow for the kitchen and three is not too much for the hall.

The E.G.S. for air is 1.55 of the cubic measure.

The E.G.S. for wall construction, like that of this residence, is $\frac{1}{4}$ of the exposed wall surface.

We take the living room first, and find that we have 1,359 cubic feet or 24.7 square feet of E.G.S. But as this room is to have two changes of air per hour we must consider that the E.G.S. is 49 square feet.

The wall surface of 225 square feet divided by 4 gives us 56 square feet. There is one wall here exposed to the west. This wall has an area of 88 square feet, and as all western exposures require an additional 10 per cent. we must consider that the E.G.S. for the walls of this room is equal to 57 square feet.

After adding the E.G.S. to the actual glass surface, we multiply the resulting sum by the temperature range of 80. For this room we find, by this method, that

the heat loss is equal to 13,120 B.t.u. per hour.

Bed rooms should have one change of air per hour.

Northern exposed surfaces should have 15 per cent. added to their areas.

The heat losses from the other rooms are:

Dining room: 12,240 B.t.u.

Kitchen: 8,160 B.t.u.

Hall: 8,240 B.t.u.

Upper hall: 3,520 B.t.u.

Bed room No. 1: 9,300 B.t.u.

Bed room No. 2: 7,120 B.t.u.

Bed room No. 3: 6,800 B.t.u.

Bath: 3,280 B.t.u.

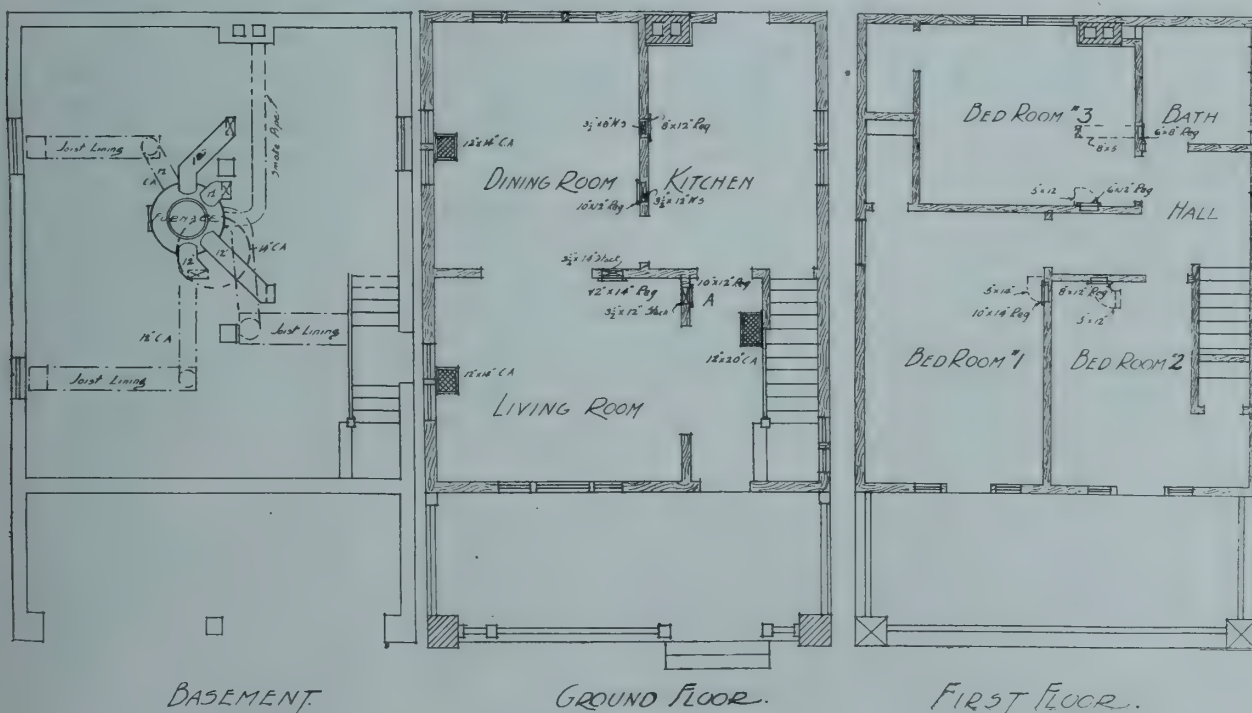
Thus, we find that the total heat loss from this building will be 71,780 B.t.u. per hour, when the outside temperature is 10 degrees below zero.

These figures divided by the factor of 204 show that the grate area should be 351 square inches.

This grate is about two sizes larger than what might ordinarily be put in a house of this size. It is the unusual amount of glass surface that makes necessary the excess in the area of the grate.

Another thing: This grate was based on a coal consumption of three pounds per square foot per hour, while the heat loss was estimated for the coldest winter

Continued on page 16



Selling Women Plumbing Fixtures Through Their Own Arguments

A WESTERN dealer felt that his sale of washing machines was slumping. He ascribed it to the need of a new selling talk. This business man decided that women—the washing machine buyers in the last analysis—were best qualified to furnish him with new sales ideas.

To gain the needed information he offered a cash prize to the woman giving the best reason in 75 words, or less, for wanting a power washing machine. Two thousand women took part, and the condensed sales talk collected was a most valuable asset to the merchant in his selling and advertising, knocking as it did from under it certain moss covered and long cherished sales bromides. The list of prospects, the principal aim as the contest was originally planned, became a mere by-product.

30 per cent. gave time as a reason; 25 per cent. mentioned strength; 14 per cent. health; 12 per cent. youth and beauty, and so on down to 3 per cent., who sought happiness through possession of a power washer.

What is the matter with a community advertisement campaign conducted jointly by all the plumbers and heating contractors in a town or city? Or of a plumbers' association featuring certain plumbing fixtures, high-grade brass goods, water heaters, water, steam or vapor heating, or in fact, any plumbing or heating appliance?

What a field for future advertising and business building that opens up! First of all the list of prospects—for surely every woman contestant will be more than sold on "A Laundry in My Own Home," or "Better Plumbing Brass Goods," or "Modern Heating," when she submits her essay. It can't be more than a step—and a short one at that—to a completed sale. Let the women show you how.

Then the essays, which didn't win the capital prize, will furnish excellent advertising copy for circular letters and newspaper copy for months afterward. Every contestant will be willing to have her effort printed, if for no other reason than to show the public the judges were wrong in not awarding her a prize.

Each of these letters—or essays—can be made the nucleus of business building advertisement. Miss X, Miss L, and Miss R, have practically sold themselves a certain

A \$50.00 PRIZE

FOR

Best Essay Written by a Woman

"Why I Want A Laundry in My House"

Judges in Contest:

Dr. Samuel Forsyth.

Rollon Wilson, Editor of Rockville Gazette

Miss E. Freany, Pres. Woman's Club.

Miss N. Smithson, Prin. Chester School.

Robert O'Mara, Pres. Rockville Association Contracting Plumbers.

Manuscripts must be in by April 1st.

Decision will be announced, and winning Essay printed in May 3rd, Rockville Gazette.

Signed:

ROBERT O'MARA,
AMES LEADBEATER,
V. E. MERES,
AARON MOSBI,
MICHAEL O'BRIEN,

Members Rockville Association Contracting Plumbers.

fixture or appliance that the plumbing and heating contractor has for sale. Let them tell why to their sisters, and thus enable Rockville plumbers to sell still others.

This can be made an advertising campaign really worth while. It will have local color and personal interest. That is the kind of campaign that pays a dividend.

BUILDERS PREPARING FOR ANNUAL CONVENTION

Winnipeg.—Harry Agnew was elected chairman of the general committee for the first annual home building exposition which will be held in the Board of Trade building, March 28 to April 2, by the building industry of western Canada. Mayor Edward Parnell was made honorary chairman.

Subsidiary committees were also appointed representing the various building trades with the following chairmen: Building plans committee, Fred Lamar; bungalow committee, R. J. Crawford; building, loans and finance committee, H. T. Hazelton; booths committee, M. McInnes; display committee, L. C. Stephens; educational committee, D. B. Sprague; floor committee, A. J. Taylor; home sites committee, E. J. Ransom; publicity committee, John Davidson; transportation committee, W. E. Milner.

The executive committee consists of W. H. Carter, chairman, W. P. Dutton, J. H. Parkhill, James Mackie, Walter Belyea, George Seale, J. S. McDiarmid and H. H. Lincoln.

Mr. Lincoln was made secretary of the exposition, and inquiries should be directed to his office, 706 Confederation Life Building.

COMBINATION HEATING SYSTEM

Continued from page 15

weather. Under ordinary conditions the heating engineer might figure that the fire could be run a little harder in the very cold weather, so that four pounds of coal could be burned per square foot. If we allow for four pounds of coal, the dividing factor would be 272, instead of 204.

A dividing factor of 272 would give us 264 square inches as the required area of the grate.

The drawings shown herewith are the plans of the small house referred to in this series. These plans are shown for the purpose of illustrating how the principles of warm air heating are applied in the details shown.

With a later article we intend to provide drawings of a much larger residence; and then we shall show the vari-

ous details of the hot water apparatus, as well as those which are to be considered as the warm air parts.

In designing a warm air system for a residence of this size the engineer might take either of the two courses already touched upon by some of the articles that have already appeared in the Sanitary Engineer. He might determine the required capacity of the furnace and the required areas of the registers by proportioning these to the size of the rooms which are to be heated; or he might, with more exactness fix these requirements by making use of the "heat loss" method of figuring.

However, it is only the experienced engineer who may, with safety, take the short and easy course of proportioning furnaces and registers to the size of the rooms: the novice, if he wishes to be sure of the success of his designs, must use the "heat loss" method until the extent of his experience warrants the exercise of his judgment, then, and not until then, may he discontinue the use of the B.t.u. as the basis of his calculations. (To be continued)

THE QUESTION BOX

Question.—I am sending two rough sketches of some work I would like to have some information on. I have a process of heating liquid in a barrel (which no other container would do) to a temperature of 150 degrees Fahrenheit and hold that temperature for one week, night and day. I have been using $\frac{1}{4}$ -inch copper pipe for a coil to go

gallons of water to the required temperature.

We must add 25 per cent. to these figures, to allow for a factor of safety. This gives us a total of 40,000 B.t.u. as our requirement.

Now, we shall allow 10 hours in which to raise the required temperature of this quantity of water. Therefore, for 40

gallons of water we shall allow 4,000 B.t.u. per hour.

A copper pipe will transmit 300 B.t.u. per square foot in an hour for each degree of temperature difference between the steam and water. The temperature of steam at 20 pounds is 257 degrees.

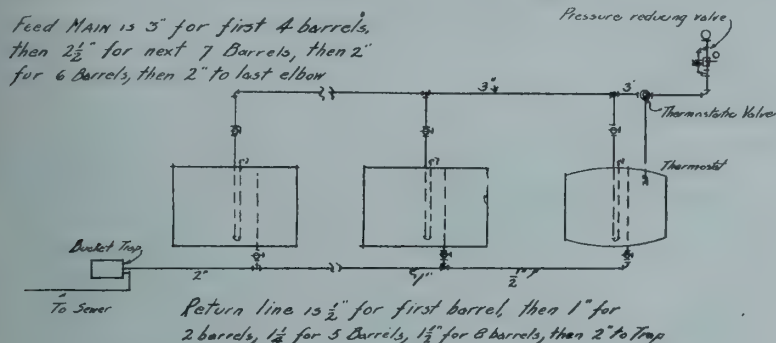
The mean temperature of the water will be 100 degrees. Therefore, to heat 40 gallons of water from 50 to 150 degrees in 10 hours, we shall require .088 square feet, or 16.3 linear inches of $\frac{1}{4}$ -inch copper tubing.

With steam at 1 pound pressure we require .12 square feet, or 21.9 linear inches of $\frac{1}{4}$ -inch copper tubing.

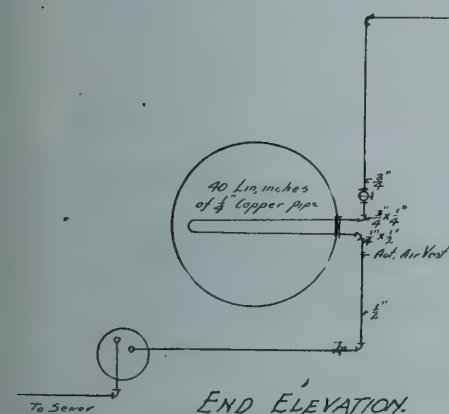
With water in a forced circulating system, and at a temperature of 210 degrees, we require .125 square feet, or 22.9 linear inches of $\frac{1}{4}$ -inch copper tubing.

For water circulating in a gravity system, at a temperature of 150 degrees, we require .27 square feet, or 49.4 linear inches of $\frac{1}{4}$ -inch copper tubing.

Now, these figures are based on a Continued on page 23



PLAN

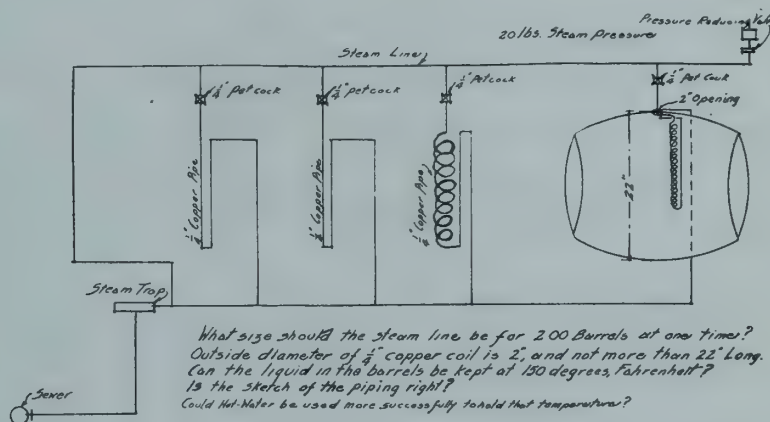


through a 2-inch opening in the side of the barrel and return out the same hole and the condensation then goes to the sewer. I have been heating two barrels that way and I would like to do 200 barrels a week with same process, if hot water could be used to hold the temperature to 150 degrees better than steam. Would you please give me a sketch showing the piping and the size that would be required? Are my sketches satisfactory; if not, would you please correct them? If my sketches are not plain please let me know as I would like to have an answer as soon as possible.

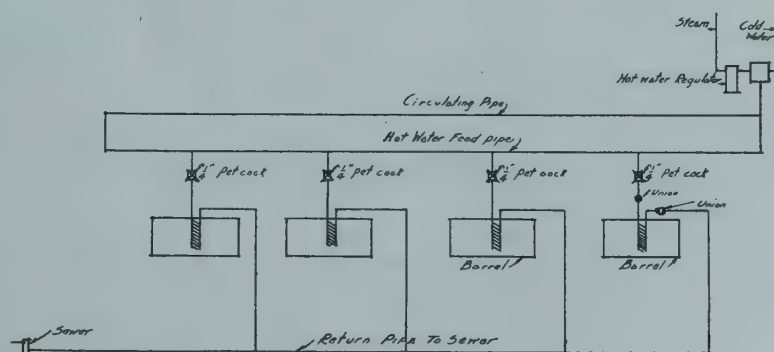
Thanking you for your past information, I remain,

AN EARNEST READER,
Belleville, Ont.

Answer.—Assuming that the liquid to be heated is water, and that it is to be warmed from a temperature of 50 degrees to 150 degrees, we find that it will take 32,000 B.t.u. to raise the 40

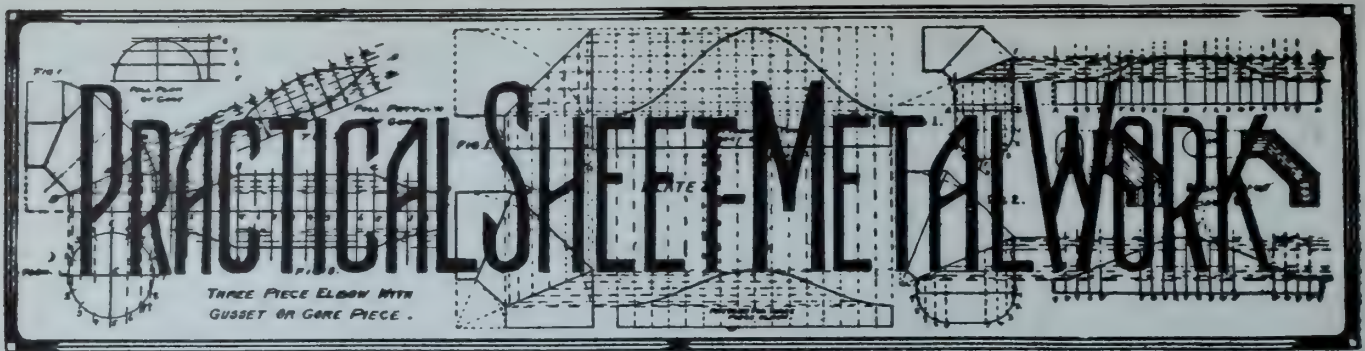


CORRESPONDENT'S SKETCH N°1.



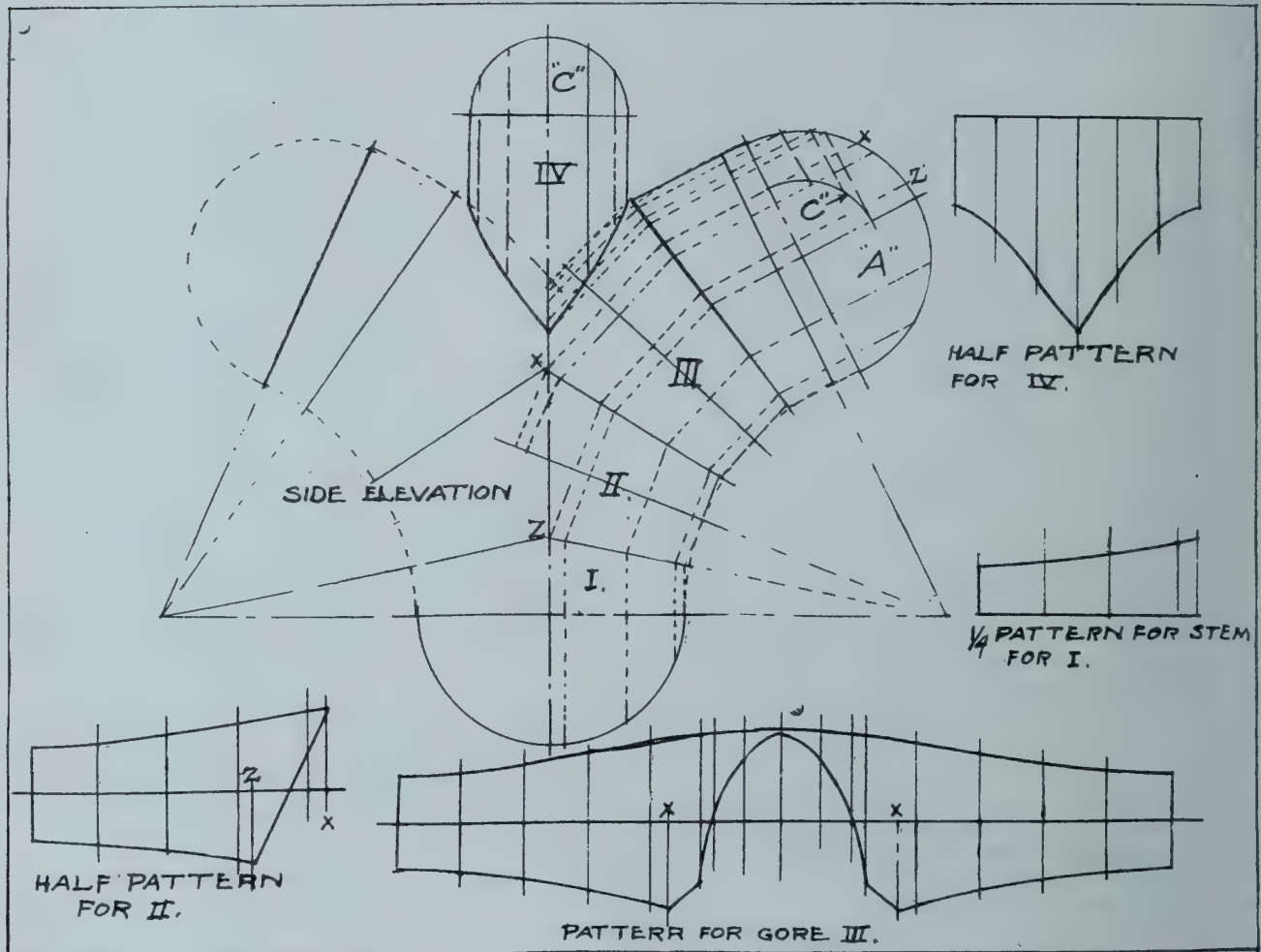
The heating coils must be made out of $\frac{1}{4}$ " Copper. After the coil is made up it is to go through a 2" Hole in the side of barrel. The inside dimension of the barrel is 22". The barrel holds 40 gallons of liquid which is to be heated to a temperature of 150° and kept at that temperature for one week.
What size should the piping be to feed 200 Barrels at one time?

CORRESPONDENT'S SKETCH N°2.



PATTERN FOR INTERSECTING ELBOWS

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.



NOW and then it occurs that elbows must intersect of similar diameters, leading from a pipe of the same diameter.

However, in this case we consider it as a problem of development and to make it a little more complicated a tee of smaller diameter is added.

So measure off your diameter and establish the vertices, and describe the heel and throat lines for angle elbow.

The degrees of angle and the number of pieces can be made at pleasure.

When the mitre lines are set in, thereby defining the various gore pieces and their intersections; then describe the half sections "A" and "C" and treat in equal spaces.

With these spaces we draw the elevation lines, always taking care so they are parallel to the gore piece they pass through.

Then to establish the mitre between the tee and gore pieces, pick the section "C" with all its points and set in "A" as "C." Then from points in "C" square lines into section "A."

From these points follow up the lines, until they intersect those from "C" in tee.

This permits drawing the mitre line between tee and elbow gore piece.

Attention must be given to the high point intersection as X-Z.

No other lines intersect these high points, so we must make lines, extending them to section "A" as in points X'-Z'.

This enables setting these high points in patterns as shown.

To set out the patterns, pick the girth from section "A" and use it for gore pieces I-II-III.

Observe gore I and II only has a partial full girth, and the points Z' or X' show the finishing lines.

The girth for tee IV is picked from "C" and set off as shown.

These elbows are developed the same as all elbows we have considered in these columns. When finished add laps for seaming or riveting.

Pulling Publicity for Live Plumbers

Planning Ahead for the Year—Careful Survey of Your Own Possibilities—The Man Who Goes After It Gets the Business And Prestige.

"GET the business." It would be impossible to make even an estimate of the number of live concerns whose sales managers have preached that little slogan of three words to the field force. Those concerns whose men have imbibed it, who have kept it right out in front of them every working day, have picked the plums. And it is quite as applicable to the plumber whose establishment may consist of small layout and comparatively limited territory as to the larger company of limited liability proportions.

The business that is established without some preconceived plan is likely to be painfully hopeless with regard to definite growth. This is so to-day in a special sense as competition is very keen, and in fact is growing keener. Every man entering business owes it to himself to make a plan and work to that plan. This is quite as applicable to the plumber of 1920 as to the other fellow.

Making a Start

It is well to look ahead. Plans for 1921 ought to be considered soon. It

takes time for these to mature, and a great deal of thought on this important feature will repay one many times over.

Much depends upon the district from which the plumber can draw his custom. Some are located in the large centres where several hundred thousands of people make up the population. There are in such points, as a rule, just as many plumbers and steamfitters, relatively, as in smaller towns. Despite this fact some have reached out beyond and picked up profitable contracts.

Take a typical small town. The population runs from 1,500 to say 5,000. There will be, in even the smallest of these, a local paper. The rates will be much less than those charged by the big dailies in cities where circulation is much greater, making for much higher rates. The plumber in the small centre here avails himself of even a better medium than a brother plumber can in the big city, for there will very often be an excess circulation in the latter for which he must pay, with probably little chance of any return. Therefore an advertisement, appearing regularly

in the town paper, will probably yield bigger returns for a given amount than can be secured in any other way. A suggestion or two that might prove resultful, if varied occasionally, appear elsewhere in this article.

Adding to This

There are at least two other ways in which advertising may be conducted by the small town plumber, and these mean less outlay, perhaps, than that required in buying newspaper space.

Have you a mailing list, or have you considered the advantages of having a good one? A retailer ought to have one of these, and it ought to be as nearly accurate as it is possible to make it. Properly prepared, with correct initials, correct addresses and indexed carefully, it forms the basis of one of the best selling plans that can be developed.

Let us suppose that John Smith is building a new house. This may have come to your notice through the local news note page of the town paper. With the mailing list at hand you can sit down and write him a letter. This may be brief, congratulating John on

PLUMBING ARRANGEMENTS YOU ARE PROUD OF INSTALLED BY US

You want the best in plumbing. The health of your precious family depends upon the care with which plumbing fixtures and piping are installed.

Your safety is a first consideration.

Have you thought what it would mean to have a leaky joint in your soil or water pipe? Or what a defective closet bowl might entail if installed?

Your safe plan is to secure the services of experts when you want plumbing installed. It matters not what your plumbing needs are, we can supply them with our expert service. No charge made for advice and we're glad to confer with you. Why not call us up before you forget?

MASTER PLUMBERS LIMITED

Ready Any Moment

When You Build Plan Your Plumbing With Great Care

In short, let us help you by suggesting the best methods, which, if adopted, will give you the best layout possible according to type or house design.

We have experts who are well versed in planning just for people who want the best in plumbing. They are ready on short notice to advise. If you want the maximum of comfort in your arrangements they will gladly figure with you.

Our service is dependable and the best, we believe, that you can obtain. Efficiency all through insures you against incompetent workmanship. You should have the best.

Blackstone - Plumber

"You Get a Master Service"

his enterprise and wishing him the best of luck in getting material and labor, and a first-class job, and ending up with a suggestion that he pay extra special attention to his plumbing arrangements. In a tactful manner it will be well to suggest that you will be glad to give him some pointers on this, even though he is not yet ready to place a contract. When he is ready, he will, if fair, give you a chance to quote a price.

In addition to this, in many districts, it will be possible to make use of the poles and trees bordering the roads leading into town on which to place well-lettered signboards. These are worth many times their cost even as reminders.

Then, of course, in addition to this there is the importance of becoming a good mixer, of making the most of opportunity in cultivating new friendships, and this will very naturally devolve upon the plumber himself. Goodwill is necessary and can largely be acquired in this way.

For the City Plumber

While the underlying principles are much the same in reaching out for business, the city plumber has a wider field. As compared with his confrere in the smaller centre he has an opportunity of getting in on the higher-class business. In soliciting this he will be wise if his plans are broad enough to embrace the man of means. With all the capital he needs, he will perhaps have two or more

Mr. J. A. Bordon,
Huxley,
Anywhere.

Dear Mr. Bordon:

It has just come to our notice that you are about to build a new home. You are to be congratulated on choosing so excellent a site.

You will, of course, be anxious to have the best possible plumbing for a given outlay. This you owe yourself and your family, and nothing that you will need requires more careful planning or selecting.

For many years we have made a careful study of the best fixtures and also of the most approved plans of installing the same. We have acquired an expert knowledge that is yours for the asking. When ready to consider plans, even for the roughing-in of your piping, we shall be glad to confer with you. This will place you under no obligation whatever and you are free to make what arrangements for the work you deem to be in your own interests.

Our showrooms have just been re-stocked with some new designs that we want you to see. They are so much in advance of any patterns that have come to our attention that we know you'll want to see them. Come in at your convenience and we will gladly explain their good points.

Very truly yours,
Master Plumbers' Limited.

Suggested Sales Letter

complete bathrooms in his new home, an extra slop sink or two, one or two sets of laundry tubs, shower arrangements, a pedestal lavatory or two, and many extras that are not installed ordinarily.

In reaching out for this trade—a very profitable one—it would seem good business to secure a fair-sized space in either a morning or evening paper that goes to the well-to-do. A message

Continued on page 23

When Visitors Come What of the Plumbing?

If there is one room in the house that you want to be proud of when guests come, unexpectedly or on invitation, it is the bathroom. Are you proud of yours?

We specialize in plumbing of the higher order. Fixtures that are absolutely flawless comprise our stock. Expert plumbers that are carefully selected and well paid install them. Inspection that will satisfy the super-critical is finally made by an expert.

We are always glad to make a survey of plumbing arrangements and offer suggestions, accompanied by an estimate of installing new fixtures.

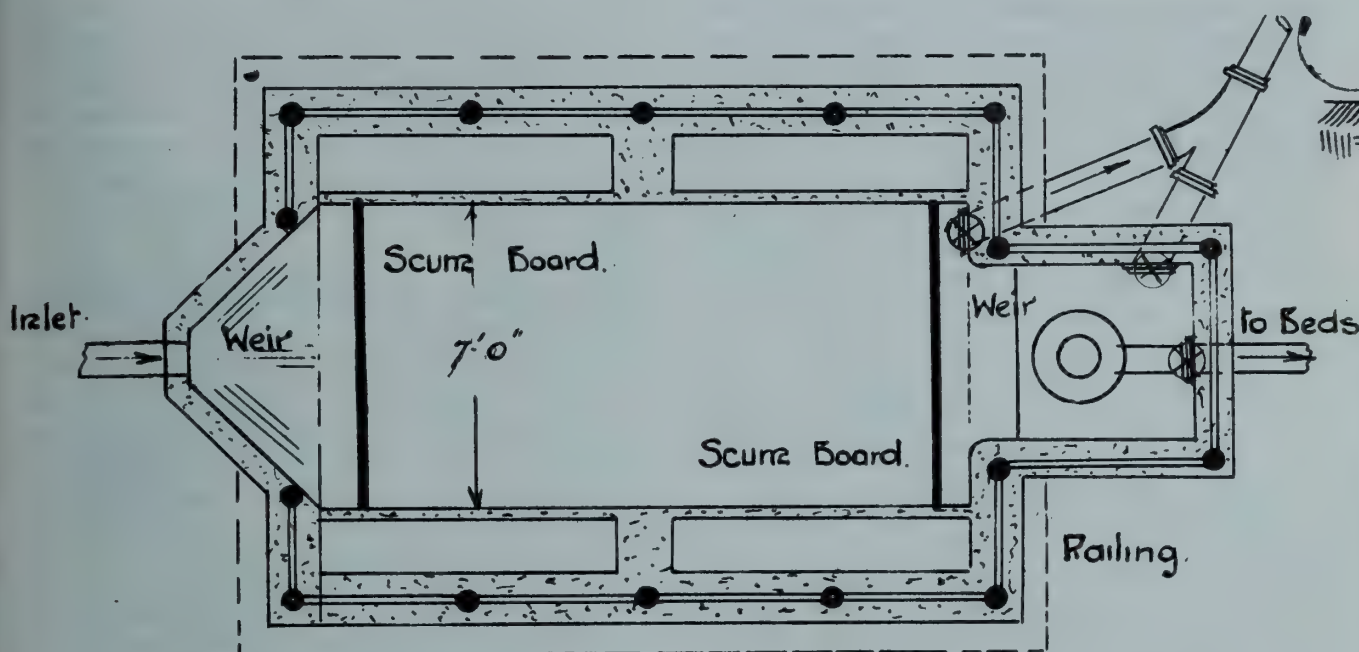
A telephone call will bring one of our figuring experts on short notice.

John Blank & Son Limited

BLACK'S CORNERS, CANADA

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied



Plan of Imhoff Tank. FIG. 33

Article No. 25 of the Series—Illustration No. 33

(Continued from last issue)

Fig. 33 illustrates a combined single chamber septic tank and artificial filtration bed, suitable for a large mansion where the adjoining land cannot be utilized for filtration purposes. The septic tank is similar to those previously described having concrete baffle walls protecting the inlet and outlet openings. Current breakers constructed of wood can be placed below the inlet baffle wall to break the velocity of the incoming sewage and prevent disturbance of the deposited sludge, if considered necessary, by nailing same to the wooden plugs built in the concrete walls.

The liquefying septic tank has many advantages over the sedimentation tank owing to the decomposition of part of the sludge which is a great saving in cleansing operations. Still the clarified effluent from a liquefying tank is very much more offensive and stronger, thus it places more work on the oxidizing filtration area caused through its longer contact with the decomposing sludge compounds during the process of purification so that whilst the septic tank reduces to a certain extent one of the greatest evils

in sewage disposal—namely the sludge problem—yet again the clarified effluent from a settling tank does not require the same amount of treatments as that from a liquefying tank, but until some other more economical system is adopted for the destruction of sludge, there is little room for doubt that the best and cheapest form of tank installation for small communities is either a well-designed liquefying tank or modified type of same.

The longer sewage can be detained in the tank the greater the destruction of organic matter and the less offensive will be the sludge, so that in practice a limit must be drawn for economical construction on the tank accommodation.

In designing septic tanks suitable for large buildings the constructional design can follow those previously illustrated for private houses except the sizes should be increased (which must be governed by the number of persons this installation has to accommodate).

EDITORIAL COMMENT

STILL MUCH RENEWAL PLUMBING WORK

THOUGH the cry is being raised by plumbing and heating engineers and others for more new building construction, it is nevertheless a fact that business in renewal installations is still far from exhausted. Take the case of Toronto, in which there are said to be 2,000 homes which lack sanitary conveniences of any kind, and in which 75 per cent. of the six and eight-room houses are occupied by two or more families while sanitary equipment is provided for one family only. Conditions in other Canadian cities are not likely to be much better than this. Here is ample room for business of this kind to fill in until new building again gets under way.

RELIEF FOR HOUSING SHORTAGE

NO one doubts the seriousness of the housing situation in Canada as a result of the lack of new building construction during the past few years, and few have had to dig as hard for business from existing buildings in the form of renewal installation work as have the plumbing and heating engineers. It is, therefore, only natural that close attention should be paid to the possibility of a renewal of building in the near future. In this connection the report of the annual meeting of the Canadian Building and Construction Industries, as reported in this issue, is of interest. The information of a Federal Housing Commission on which the workers will have representation, is urged. It is furthermore suggested that the Federal Government float a bond issue to provide the sum of \$250,000,000 for building, loans to be made on houses up to a certain value.

The Federal Government's treasury is no doubt in a very depleted condition these days owing to the heavy demands made upon it in recent years, and the continuation of heavy buying abroad by Canadians. It is, therefore, a question if the Government would be justified in further mortgaging its resources to provide such a fund. Undoubtedly the acuteness of the housing shortage calls for some definite action, and there would also seem to be little doubt that the resumption of building activity would do much to restore normal conditions in Canadian industrial life. There are those who claim that renewal of building as a means of giving employment and of putting capital into play, is all that is required to end the present stalemate. If such a con-

dition would be the outcome of such Governmental action it would seem to be quite justified. That is for the Government to decide, and meanwhile though building materials have declined considerably and wages are lower, building contractors appear to be making very little effort toward the resumption of activity.

THE BUSINESS TREND AND THE PLUMBER

IT is an undisputed fact that we have passed through a prolonged era known as a "sellers' market"—a period when any person could secure business because orders were shoved at any travelling man who would take them. All that was required to be a salesman was to have the house willing and able to ship the goods. Now, the real "salesman" is coming back into his own.

There is absolutely no call for pessimism as to the present or future in the plumbing and heating industries. There is more business to be had than the manufacturers of plumbing and heating appliances can supply material for. This statement is amply proven by facts.

To obtain his proper quota, each salesman will have to have a complete sales force of his own. The average plumbing and heating contractor of to-day is an "order-taker," and a sales force of that kind will not be productive during a period when business must be secured by real selling. Therefore, every salesman who wishes to be successful must qualify as a sales manager of his individual territory. He must know how to lay out his field and follow up his prospects.

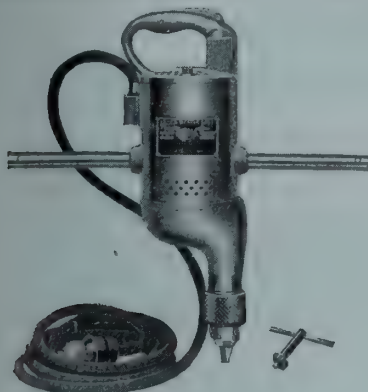
The salesman will soon find himself calling on dead timber, if he fails to sell his customer the idea of building business; first, by securing the proper location for his business establishment; second, by having a modern display of his wares; third, by using the greatest of all silent salesman, the show window; four, by influencing the public to buy plumbing and heating materials, as a result of properly advertising their true value, through such mediums as circular letters, newspapers, bill boards, or the moving picture theatre screen, and the plumbing and heating contractor will also improve his business much by taking advantage of all such suggestions.

NEW PLUMBING GOODS

WODACK PORTABLE ELECTRIC DRILL

The Wodack Electric Tool Corporation, 23-27 Jefferson Avenue, Chicago, Ill., are offering to the Canadian trade a portable electric drill and grinder, for which they claim special features.

The motors of their own design and manufacture are said to be self-adjustable in speed to the size of the bits used. The switch located in the top handle and operated with the palm of



Wodack Drill

the hand is of the make and break type. As pressure is released switch shuts off current, thus avoiding drills running empty and ensuring operator having full control. The gears are of chrome nickel steel and motor windings are protected from injury by liquid tight grease compartments.

It is claimed that drills cannot be stalled when driven at their rated capacity. They are made in 4 sizes, and the $\frac{1}{2}$ in. size is made in two speeds.



Wodack Grinder

WODACK PORTABLE GRINDER

The grinder is designed for smoothing down castings, also for buffing and polishing. The motor is completely enclosed and is fan cooled. It is furnished with 10 feet of cord and an emery wheel, size 4 x 1 x $\frac{3}{4}$ in.

"MENO" RUST REMOVER AND CLEANSER

A new preparation known as "Meno" rust remover and cleanser, has recently made its appearance on the market. The inventor of the preparation is a chemist, who, realizing that the methods employed to remove rust, corrosion, etc., from machines, engines, tools and all metal surfaces, required considerable time and involved high labor costs, set before himself the task of devising a

much better and more economical cleansing method, with the result that "Meno" rust remover and cleanser was invented, and that it is remarkably efficient to a high degree is proven by the enthusiastic endorsements received from those who have used it. It is a combination and blending of certain chemical ingredients, which in combination produce an electro-chemical action that is said to rapidly loosen and dissolve rust, corrosion, grease, oil, dirt, carbon, paint or any other foreign substance that is adhering to the metal—irrespective of its age or hardness, its action automatically ceases when contact between the cleanser and the metal is established, and it will positively not injure or mar the surface of the metal itself in any way. There are two methods of using the preparation, by applying with a brush, or by mixing the preparation with water and immersing article to be cleaned. It is stated that the preparation is absolutely safe in every way, that it will not burn or explode, and is an economical one to use, as the same solution may be used many times over as it does not deteriorate or lose its cleansing power. Peter A. Frasse & Co., of 417 Canal Street, New York, U.S.A., are the sole distributors, and are now establishing agencies in various parts of the country for the sale of this preparation.

THE QUESTION BOX

Continued from page 17

ten-hour warming period. If it is necessary that the water be raised to the required temperature in five hours' time, then the amount of heating surface required should be twice that estimated here. If the water is to be heated to this temperature in one hour's time, then the heating surface must be ten times as great as that estimated for the ten-hour warming period.

There will be a certain amount of heat lost through the walls of the barrel. This loss will amount to 27 B.t.u. per square foot per hour while the water is being raised to a temperature of 150 degrees. The loss will amount to 54 B.t.u. per hour after the water is heated. It is this loss that must be made up after the water is once heated. If the exact amount of coil required to offset the heat loss were installed, it would take 79 hours to raise the water to a temperature of 150 degrees.

Our recommendation is that steam be used as a heating medium, and that thermostatic control of the temperature of the water be provided for. This can be arranged so that only enough heat will be added to the warmed water to keep it at the temperature of 150 degrees.

It will be necessary to place the thermostat in one barrel only. The temperature of the water in that one barrel will control the temperature of the water in the remaining nineteen barrels.

We show a drawing of a suggested lay-out for this plant.

We are assuming, for the purpose of illustration, that the steam will be admitted into the copper coils at a pressure of 5 pounds, and that 5 hours will be the time allowed for the heating of the water.

The copper tubing is arranged with a return bend, and the tube is not coiled. By arranging the tubing in this way there will be no obstruction to its free venting and drainage. The fall in the piping and in the tubing should be continuous to the points of drainage.

PULLING PUBLICITY FOR PLUMBERS

Continued from page 20

to the woman of the house might characterize some of the advertisements, and the "copy" will have to be of a high order to attract these prospects. It is service they want, for service they will have and for it they will pay. Therefore, convinced that you are the one that can supply it, and of the very highest type, let your message reveal your facilities and your ability to deliver what is demanded, not in the way of high-class fixtures only, but, as well, in the service your men are fitted to deliver.

A glance at and a study of the accompanying "copy" will convey some idea of what ought to prove timely suggestions. Now, while building is at a low ebb, why not improve the time and prepare for the better building season which is bound to come?

COMBINED DRAIN IS MORE EFFICIENT

Continued from page 14

more extraordinary claim was never made, as five or six bricklayers were now required for every one available.

With regard to combined drainage he had usually adapted 4-inch pipes to two houses, 6-inch to six or eight houses. It was well known that larger sizes were more likely to become drains of deposit than those of smaller size. In every case it was essential that drains should be ventilated. No such thing as ventilation was possible without an air inlet as well as an outlet. Some drastic change was needed in the labor question. He had carried out just before the war, for the Hereford City Council, sixty-two houses at £200 each; the same type was now costing £1,000 each.

Mr. H. H. Miller (Liverpool) said the smoke test for new drainage was to be preferred to the water test. Frequent manholes were advisable. He suggested that correct plans of drains should be compulsorily deposited with title deeds. Drainage from basement in shops in Liverpool, raised by small pump to existing drain, had worked quite satisfactorily.

Over 683,214 Farms in Ca

Investigations of the U.S. Department of Agriculture have shown that 90% of the farms have outdoor toilets.

Official figures of the Canadian Government give the total number of farms in Canada as 711,681.

Therefore, using U.S. statistics as a favorable basis for comparison, 96%, or 683,214 of the Canadian farms have outside toilets and are definite, practical prospects for water supply systems and bathroom enamelware equipment.

Every new move on the part of the serious investigator of plumbing conditions in Canada

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Canada Have Outside Toilets

brings to light more and greater opportunities for the sale of plumbing equipment than were realized before.

About 54% of Canada's population is rural and 46% urban; we have shown, and will continue to show, that there are almost unlimited opportunities for business in both these fields. The Canadian trade must realize this, and through them the public must appreciate the need for action.

There is a big harvest to be had right now by plumbers who are taking active steps to sell plumbing enamelware to all the prospects in their districts.

McGraw-Hill Company, Limited

Halifax Office:
ROYAL BANK BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Improvement In Building Industry

Value of Building Permits During 1920 Totalled \$107,828,855 Compared With \$81,678,152 in 1919—Indications Point to Improvement Which May Make Revival of Activity Possible.

BUILDING activities which had been on the wane throughout Canada during the later months of last year made a further decline for the month of December. The value of building permits for the last month amounted to \$4,067,274, which compares with \$4,979,302 for the corresponding month of the previous year, and \$4,903,253 for November last. It is only in comparison with some of the earlier months of the year that the extent of the decline can be realized. Returns for April, the leading month of the year aggregated \$16,-

085,649, for May \$13,953,688, and for June \$13,278,300. From that time on the building trades were hampered by increasing difficulties arising out of the unprecedented costs of materials and labor, and the acute scarcity of money that developed. The totals for the balance of the year show substantial declines.

The returns for the year, however, indicate a fair increase over the total for the previous year, standing at \$107,828,855, as against \$81,678,152, or an increase of \$26,150,703. The cities of eastern Canada report a total of \$80,307,065 for the year against

\$68,256,467, and the western cities, \$27,621,790 compared with \$13,421,685.

For the past month Toronto reports a total of \$1,117,083, which is an extensive decline over the return of \$2,039,625 for December, 1919. Montreal's total stands at \$672,900 compared with \$658,401 last year. The city of Halifax has suffered a conspicuous decline from \$314,340 for December, 1919, to \$47,155 last month, while Peterborough figures advance from \$3,243 a year ago to \$392,724 last month. Vancouver also reports a fair improvement from \$118,453 to \$320,905.

For the complete year Toronto's returns total \$25,784,732, against \$19,819,436. While this is a very substantial increase the year's returns do not constitute a record, falling short by nearly \$2,000,000 of the best year prior to the war. The majority of Canadian cities report an increase for 1920 over the returns of 1919, some of the exceptions being Halifax, with a decline of \$1,774,267; Moncton, \$932,003; Brantford, 373,817; Guelph, \$109,101; Hamilton, 747,242; Kingston, \$132,944 and London, \$308,865.

The year, 1921, opens with conditions still abnormal. Building during the present year will be guided by the extent of the decline in the costs of materials and labor, and in the easing up of the money situation. Every indication points to a substantial improvement in these factors, and builders generally are hopeful that the Spring months will witness a revival of activity on a par with that of last year.

The following are the important permits issued during December: Sherbrooke, candy factory, \$25,000; Hamilton, factory addition for the Canadian Westinghouse Company, \$125,000; London, Y.M.C.A. building, \$50,000; Peterborough, transformer building, \$210,554; annealing building, \$60,000; punch press shop, \$119,145, all for Canadian General Electric Company; Port Arthur, planing mill, \$4,000; Windsor garage, \$70,000; York Township, storehouse, \$12,000; Winnipeg, addition to St. John's College, \$20,000; Calgary, school \$157,000; Regina, police station, \$28,000.

BUILDING PERMITS ISSUED IN DECEMBER

Eastern Cities.						
	Dec., 1920.	Dec., 1919.	Change	12 mos. 1920.	12 mos. 1919.	Change
Maritime—						
Halifax	\$ 47,155	\$ 314,340—	\$ 267,185	\$ 3,420,539 0	5,194,806—	\$ 1,774,267
Moncton	16,350	58,100—	41,750	1,201,673	2,133,676—	932,003
St. John	182,000	.....+	182,000	1,035,000	506,540+	528,460
Sydney	5,770	32,843—	27,073	850,332	703,741+	146,591
Quebec—						
Montreal ..	672,900	658,401+	14,499	14,358,355	10,033,901+	4,324,454
Quebec ..	80,660	91,150—	10,490	2,301,480	2,134,219+	167,261
Sherbrooke ..	28,500	15,600+	12,900	3,265,538	872,150+	2,393,388
Westmount ..	92,280	47,200+	45,080	1,179,890	883,131+	296,759
Ontario—						
Brantford ..	5,080	78,325—	73,245	799,763	1,173,580—	373,817
Chatham ..	5,200	10,610—	5,410	386,634	291,547+	95,087
Fort William ..	1,825	850+	975	1,045,160	627,930+	417,230
Guelph ..	4,200	4,100+	100	494,158	603,259—	109,101
Hamilton ..	192,550	180,750+	11,800	1,340,220	5,087,462—	747,242
Kingston ..	1,655	143,885—	142,230	524,736	657,680—	132,944
Kitchener ..	1,320	17,380—	16,060	1,277,595	1,176,662+	100,933
London ..	117,590	431,200—	313,610	2,146,305	2,455,170—	308,865
Ottawa ..	92,700	118,575—	25,875	3,355,662	3,232,322+	123,340
Peterborough ..	392,724	3,243+	389,481	939,700	196,368+	743,332
Port Arthur ..	4,755	1,714+	3,041	216,350	1,708,345—	1,492,495
St. Catharines ..	19,199	29,125—	9,926	830,632	861,636—	31,004
St. Thomas ..	.....	1,050—	1,050	258,821	285,525—	26,704
Stratford ..	355	1,433—	1,078	440,782	278,829+	161,953
Toronto ..	1,117,083	2,039,625—	922,542	25,784,732	19,819,436+	5,965,296
Welland ..	4,045	350+	3,695	299,420	369,235—	69,815
Windsor ..	115,050	73,060+	41,990	4,850,310	2,601,370+	2,248,940
Woodstock ..	13,431	2,325+	11,106	290,928	126,322+	164,606
York Twp. ..	110,400	143,450—	33,050	4,312,350	4,241,125+	71,225
Total 27 E. cities..	\$3,324,777	\$4,498,684—	\$1,173,907	\$80,207,065	\$68,256,467+	\$11,950,598
Western Cities.						
Manitoba—						
Brandon ..	\$ 6,602	\$ 7,160—	\$ 558	\$ 412,829	\$ 98,541+	\$ 314,288
St. Boniface ..	13,625	2,000+	11,625	465,992	360,435+	105,557
Winnipeg ..	93,900	149,450—	55,550	8,370,150	2,948,000+	5,422,150
Alberta—						
Calgary ..	203,400	34,000+	169,400	2,806,100	2,211,100+	595,000
Edmonton ..	8,900	19,000—	10,100	3,231,955	931,346+	2,300,609
Lethbridge ..	9,900	.....+	9,900	252,090	162,110+	89,980
Saskatchewan—						
Moose Jaw ..	6,365	48,900—	42,535	1,533,095	590,895+	942,200
Regina ..	43,800	12,400+	31,400	2,597,920	1,699,020+	898,900
Saskatoon ..	7,150	29,555—	22,405	1,150,585	1,404,590—	254,005
Weyburn ..	575	.....+	575	2,376,991	130,155+	2,246,836
Yorkton ..	15,075	50,200—	35,125	418,195	447,800—	29,605
British Columbia—						
New Westminster ..	12,300	9,500+	2,800	296,015	166,282+	129,733
Vancouver ..	320,905	118,453+	202,452	3,709,873	2,271,411+	1,438,462
Prince Albert ..	2,000	21,575—	19,575	471,775	275,576+	196,199
Medicine Hat ..	4,050	.....	.....	.....	.....	.....
Total, 13 W. cities..	\$ 742,497	\$ 480,618+	\$ 261,879	\$27,621,790	\$13,421,685+	\$14,200,105
Gd. total, 40 cities..	\$4,067,274	\$4,979,302—	\$ 912,028	\$107,828,855	\$81,678,152+	\$ 26,150,703

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

OBITUARY

Death of Daniel Glynn, of D. Glynn & Son, plumbers, Toronto, is announced. Montreal.—Archibald Ferguson, plumber, is dead.

BUSINESS CHANGES

Barrie, Ont.—Moffatt & Parr, plumbers, have dissolved partnership.

Kitchener, Ont.—Ruppel, Neeb & Co., plumbers have dissolved partnership.

Winnipeg.—Bullard & Carroll, plumbers, have dissolved partnership.

Selkirk West, Man. — Sveinson & Sigurdson, plumbers, have been succeeded by Hendrickson, Sigurdson and Sveinson.

PLUMBER RE-ELECTED MAYOR OF MONTREAL WEST

Montreal.—Jas. Ballantyne, past convener of the Master Plumbers' Association and a prominent plumbing contractor of Montreal, was this week returned by acclamation for his sixth term as mayor of Montreal West.

FIRE DAMAGES W. R. CUTHBERT & CO. FACTORY

Montreal.—Fire almost totally destroyed the factory of W. R. Cuthbert & Co., manufacturers of plumbers' and engineers' supplies. L. Cohen, president of the company, stated that the plant had just been overhauled and fitted anew, ready for 1921 business. Although the building was burned almost to the ground, the trade can still be supplied with their products, as the large stock which was on the ground floor was rescued from the flames and water. New building operations will be commenced in the very near future.

WESTERN ONTARIO NEWS

Charles Mason has been appointed sanitary inspector at Simcoe, Ont.

* * *

Plans are being prepared and work will be commenced early in the spring on a new sanitary sewer on Main St., Simcoe, Ont.

* * *

Albert Shoff, Langton, Ont., is preparing plans for a new residence to be erected in the spring and is interested in prices of plumbing.

* * *

Plans are being prepared and tenders will be called about the middle of February for a \$70,000 addition to Victoria School at London, Ont. Prices wanted

on steam heating, plumbing and electrical work.

* * *

J. O. Deslippe, Amherstburg, Ont., is preparing plans for a new \$5,000 residence to be erected in the spring and wants prices on heating and plumbing.

* * *

Building Inspector A. M. Piper, City Hall, London, Ont., wants prices on steam heating, plumbing and electrical work in connection with new \$35,000 police station to be erected.

* * *

John Scoyne, of Blenheim, Ont., wants prices at once on heating and plumbing in connection with the remodelling of residence.

* * *

W. J. Stafford, St. Marys, Ont., is preparing plans for a new \$7,000 bungalow and wants prices on heating, plumbing and electrical work at once.

* * *

Plans are being prepared for a new parish hall at Huntingford, Ont. A committee of which Rev. W. B. Moulton is chairman is getting plans.

* * *

Additional lavatory accommodation is to be installed in the Wortley Road School at London, Ont., at a cost of \$14,000. Architect L. E. Carrothers, Board

of Education, is preparing the plans and prices are wanted at once on equipment.

* * *

Hyatt Bros., 288 Egerton St., London, Ont., are preparing plans for the erection of seven dwellings at Pine Lawn, a suburb. Interested in prices of plumbing, heating and electrical equipment.

* * *

Paul J. Saad, Amherstburg, Ont., is preparing plans for a new \$5,000 bungalow and wants prices immediately on heating, plumbing and electrical work.

* * *

E. V. Buchanan, general manager of the Public Utilities Commission, Hydro offices, London, Ont., wants prices immediately on thirty-five fire hydrants.

* * *

Plans will be prepared by the department at Toronto for a new nurses' home to cost \$35,000 for the Ontario Hospital at London.

* * *

The Knights of Columbus at Windsor, Ont., will have plans prepared for the erection of a new temple to cost \$150,000.

* * *

The contract for a new filtration plant to remove undue quantities of iron from the water supply has been awarded by the Water Commissioners at London, Ont., to the Permutit Company of New York and W. J. Westaway of Hamilton.

Silver Cup for Plumbers' Association

Curling a Favorite Sport Among Montreal Master Plumbers—To Have Premises in New Builders' Exchange Building.

MONTREAL.—At a meeting of the Master Plumbers' Association held on Thursday evening, January 20, matters of a confidential nature were discussed. Labor and excise tax being chief among them. H. Lavigne occupied the chair in the absence of D. A. Bethune, president of the Association.

Although these meetings are for the purpose of discussing important developments which become evident from time to time, sport is not forgotten and is discussed with the same enthusiasm as are business matters. The Master Plumbers indulge in the art of curling when their labor difficulties are not occupying their time, and much interest is attached to these matches. It is now understood that a silver cup will be donated by a New York firm, with a Canadian agency, to the local association for competition among their ranks. Future meet-

ings will be held the second Thursday of each month, instead of the second Wednesday, the latter day conflicting with some of the curling matches.

Previous to the meeting, the matter of obtaining floor space in the proposed new ten-story structure for offices and meeting hall for the Master Plumbers' Association was under discussion. The new building, if erected, will be owned co-operatively by the occupants, the maximum rent being \$1.50 per square foot, and stock allotted on the basis of four to six dollars for each square foot taken by tenants. It would no doubt be the proper location for the plumbers, being in the same building as their allied industries. The Builders' Exchange and Club premises will be located there, and already different construction companies and manufacturing concerns have applied for floor space.

CONVENTION OF SASK. S. AND H. ENGINEERS

Moose Jaw.—The annual convention of the Saskatchewan Society of Sanitary and Heating Engineers will be held in Moose Jaw on March 1 and the three following days. Between fifty and one hundred delegates from all parts of Saskatchewan will be present for the gathering. Local arrangements for the convention are now being made by Alderman T. J. Alexander.

On the first day of the convention the executive of the Saskatchewan Association will meet. At the business sessions of the convention the Provincial Government boiler and sanitary inspectors will be present.

On the last day of the convention the wholesalers and jobbers from the principal centres in the West will be present. These will come mainly from Winnipeg. This is one of the features of the convention which has proved very popular in other years.

SEMI-ANNUAL ELECTION OF PLUMBERS AND STEAMFITTERS

Winnipeg.—James Crawford was re-elected as president of local 254, United Association of Plumbers and Steam Fitters at a meeting held in the Labor Temple. Thomas Arnott was the unanimous choice for the office of vice-president. Other officers elected for the ensuing six months were: R. C. Neill, financial secretary; J. Rayson, recording secretary; Thomas Elder, treasurer; executive board, T. Arnott, J. Muter, G. Warton, P. Brice, A. Mitchell, and D. McKenzie; financial board, D. Fargrieve, J. Crawford, W. Goslin; trustees, D. Dobbie, R. Rodway; inside guard, J. Woodend.

A financial statement submitted showed the local to be in a sound condition. Although the unemployment situation was reported to have considerably affected the trade locally, officials expressed themselves as confident that conditions would be shortly materially relieved.

PSEUDO PLUMBER ALLEGED TO HAVE VICTIMIZED SUPPLY HOUSES

Toronto.—Louis Blugerman, Cecil street, has been arrested on a charge of fraud. The complainants are the Morrison Brass Co., the Standard Sanitary Co. and the James Robertson Co., all manufacturers of heating and plumbing supplies. Blugerman is alleged to have represented himself as a plumber, telephoned the various companies that he was waiting for certain plumbing fixtures and asked that the supplies in question be sent to him. For the conveyance of these supplies Blugerman employed an expressman and when the expressman arrived with the goods at Blugerman's home, Blugerman would write out a cheque, for which there was no funds.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

PLUMBING AND HEATING CONTRACTS AWARDED

Lindsay, Ont.—Plumbing and heating contract for citadel for Salvation Army costing \$13,000 is awarded to Boxall & Matthie, Ltd., Kent street.

Toronto.—Additional contracts for store and apartment costing \$8,000 for C. L. Coulson, 350 Danforth Ave., are: plumbing, H. Winkle, 68 Moscow Ave.; heating, C. Roy Lapier, 3 Audley St.

London, Ont.—Wm. Skelly, 242 King St., is awarded plumbing contract for interior alterations and addition to building for Home for Incurables costing \$50,000.

Como East, Que.—L. Lauzon, St. Lazare, has plumbing and heating contracts for residence costing \$10,000 for D. M. Lindsay, 232 Wilson Ave., Montreal.

Toronto.—Two residences costing \$7,500 each for H. E. Warrington, 82 Wheeler Ave. Plumbing and heating contracts are awarded to E. Emmott, 51 Amroth Ave., Toronto Furnace & Crematory Co., Ltd., 111 King St. E., respectively.

Pembroke, Ont.—Heating contract for splint factory (machinery \$200,000 and buildings \$300,000) for Maguire, Patterson & Palmer, Ltd., 343 Dorchester St. W., Montreal, is placed with Ballantyne & Co., 163 Nazareth St., Montreal.

Brantford, Ont.—Schultz Bros. & Co., Ltd., 35-59 Albion St., Brantford, have general contract for remodelment of store at cost of \$12,000 for the Gay Stores, Ltd., 230 St. Catherine St. W., Montreal. Electrical contract is awarded to T. J. Minnes & Co., 9 King St., and Anguish & Whitfield, 40 Colborne St., have plumbing and heating contracts.

Victoria, B.C.—Thacker & Holt, 626 Pandora Ave., have plumbing contract for two bungalows costing \$7,000 for Robert Porter, 649 Superior St.

Toronto.—Contracts for one pair of residences costing \$5,000 each for Harry Bage, 72 Drayton Ave., are: plumbing, J. H. Nettleship, 576 Parliament St.; heating, Toronto Furnace & Crematory Co., Ltd., 111 King St. E.

Montreal, Que.—Plumbing and heating contracts for apartment house costing \$25,000 for J. Gersovitz, 1117 St. Urbain St., are awarded to J. Becker, 1439 St. Dominique St.

Outremont, Que.—Additional contracts for thirteen residences costing \$45,000 for P. Guidazio, 824 Champagne Ave.,

are: plumbing and heating, Lalonde & Dubeau, 1209 Van Horne Ave.

Toronto.—Pair of residences costing \$7,000 each for Alex. Grant, 337 Logan Ave. Contracts are: Hot water heating, Leslie Bros., 1027 Gerrard St. E.; hot air heating, Pease Heating Co., Ltd., 118 King St. E.

Cap de la Madeleine, Que.—Massicotte & Freres have plumbing contract for store and tenement costing \$10,000 for Francois Marchand, Alice St.

London, Ont.—Plumbing and heating contracts for remodelment of warehouse for offices at cost of \$10,000 for Elliott Marr Co., 384 King St., are placed with Wright Teale Co., 60 Dundas St.

Toronto.—Plumbing and heating contract for residence costing \$15,000 for C. James, 29 Clifton Ave., is placed with A. J. Wise Heating Co., Vaughan Rd.

Toronto.—Two residences costing \$6,000 each for A. T. Baker, 1897 Davenport Rd. Additional contracts are: Plumbing, J. McKeown, 105 Wardell Ave.; heating, W. Harrington, c/o owner.

Toronto.—Contracts for two bungalows costing \$5,500 each for A. T. Baker, 1897 Davenport Rd., are: Plumbing, J. McKeown, 105 Wardell Ave.; heating, W. Harrington, c/o owner.

Waterloo, Ont.—Plumbing and heating contracts for residence for Wm. Huess, Erb St., are awarded, respectively, to Mr. Bleisen, Erb St., and M. Weichel & Son, King St.

WATERWORKS AND SEWERAGE EXTENSIONS

London, Ont.—Construction of water mains is planned by Utilities Commissioners. E. V. Buchanan, manager, will prepare plans.

Montreal West, Que.—Ratepayers passed by-law authorizing construction of sewers and water mains for town. Chas. I. Fraser, secretary-treasurer, Westminster Ave. S.

Orillia, Ont.—Town council contemplates laying of 1,200 feet of 8 inch or 10 inch sewer and about 1,200 feet of 6 inch connections, work to be done by day labor. J. J. Hatley, chairman of sewers committee.

Peterboro, Ont.—Tenders for construction of filtration plant costing \$350,000 for city council will be called February 1.

Excavation of the reservoir is expected to start shortly. R. L. Dobbin, superintendent of waterworks.

* * *

Amherstburg, Ont.—Construction of sewers in one street is planned by Town Council. L. T. Bray, Engr.

* * *

London, Ont.—Utilities Commrs. plan to equip a filtration plant to remove iron from water. Information and prices wanted on equipment. E. V. Buchanan, Gen. Mgr. of Cmsn.

* * *

Longueuil, Que.—M. M. Condon, City Hall, Longueuil, Secy. Inter-Municipal Sewer Construction Com. for Longueuil, Montreal South, St. Lambert and Greenfield Park, Que., will receive tenders until February 2 for the following: 1,884 lin. ft. of 39 in. reinforced concrete pipe; 4,820 lin. ft. of 48 in. reinforced concrete pipe; 460 lin. ft. of 48 in. reinforced subaqueous pipe fitted with flexible joints. Specifications and form of tender may be had from Engrs. of the Com., E. Drinkwater, Town Hall, St. Lambert, L. A. St. Marie, City Hall, Longueuil. Com. reserves right to accept lowest or any tender and reject any or all tenders.

* * *

Simcoe, Ont.—Town Council contemplates laying about 5,000 feet of 8 in. sewer pipe and 5,000 feet of 6 in. laterals on West and Main Sts. and districts. G. R. Marston, Engr.

CONSTRUCTION PLANNED AND TENDERS WANTED

Orillia, Ont.—R. B. Angus, architect, Angus Block, North Bay, Ont., is preparing sketch plans for remodelment of business block and hall to cost \$25,000 for Orillia Masonic Lodge. John C. Miller, chairman finance committee, 149 Peter Street North.

* * *

Radway Centre, Alta.—Tenders will be called shortly by Mrs. James Harrison, 67 Isabella St., Toronto, Ont., for erection of Mission Hall estimated to cost \$18,000 for Women's Missionary Society of the Methodist Church, Toronto.

* * *

Saskatoon, Sask.—Plans are being prepared by Brown & Vallance, architects, 128 Bleury St., Montreal, Que., for chemistry building estimated to cost \$400,000 for University of Saskatchewan.

* * *

Brown & Vallance, architects, 128 Bleury St., Montreal, are preparing plans for addition to Qu'Appelle Hall to cost \$100,000 for University of Saskatchewan.

* * *

Sherbrooke, Que.—Five story hospital of plastic brick construction is being erected by Hospice du Sacre-Coeur, 204 Belvidere St. S. Alfred Dion, 71 Brookes St., is supervising work.

* * *

Russell, Man.—By-law will be submitted covering purchase of site and erection of hospital buildings, including

furnishings and equipment with complete operating room. Project is estimated to cost \$100,000. Northwood & Carey, architects, Union Bank Bldg., Winnipeg.

* * *

Thorold, Ont.—Theo. A. Thompson, P.O. Box 5, Thorold, has plans and will receive tenders, no closing date set, for general contract and sub trades for erection of five residences estimated to cost \$20,000.

* * *

Max Church, Vine St., will receive tenders, no closing date set, for general contract for erection of duplex residence costing \$6,500. Plans with A. E. Nicholson, architect, 51 Queen St., St. Catharines, Ont.

* * *

Rock Island, Que.—G. Duhamel, N.P., contemplates erecting a residence at cost of \$10,000. J. W. Gregoire, architect, Casino Building, Sherbrooke, Que., is preparing plans.

* * *

Montreal, Que.—General contract for erection of addition of two wards to hospital for Notre Dame Hospital, 351 Notre Dame St., is placed with C. Brouillet, 287 Christophe Colomb.

* * *

South London, Ont.—Plans are being prepared for children's home to cost \$30,000 for Salvation Army. Lt.-Col. Miller, architect, 20 Albert St., Toronto.

* * *

Hamilton, Ont.—W. T. Dymont, 100 Kensington Ave., will receive tenders, no closing date set, for all trades required for erection of two stores and apartments costing \$30,000.

* * *

Toronto.—H. Lucas, 16 Ellerbeck Ave., is building a store and apartments costing \$20,000 on Danforth Ave.

* * *

Kitchener, Ont.—Harry Lobsinger, 198 W. King St., has plans and will receive tenders from Jan. 20 until Feb. 28 for all trades required for erection of store estimated to cost \$6,000.

* * *

Waterloo, Ont.—L. Holle, architect, King St., has plans and will receive tenders from March 1 to 20 for erection of residence estimated to cost \$9,000.

* * *

Tenders will be received from Feb. 15 to March 15 by L. Holle, architect, King St., for erection of residence estimated to cost \$11,000. Plans with architect.

* * *

Wellington, Ont.—Erection of school costing \$50,000 is contemplated by School Board. H. D. Cleminson, secretary.

* * *

Berwick, N.S.—Erection of a hospital costing \$25,000 is planned by Western Kings Memorial Hospital. L. R. Fairn, architect, Aylesford, N.S.

* * *

St. Anne de Bellevue, Que.—Erection of several residences is contemplated by Garden City Press, J. J. Hartel, Gen. Mgr.

Toronto.—Residence costing \$5,000 for J. W. Barrett, 67 Bertmount Ave. Tenders will be received for electric and heating.

* * *

Toronto.—Residence costing \$8,000 for W. G. McClean, 1116 St. Clarens Ave. Tenders will be received on all trades.

* * *

Toronto.—F. Barber, Engr., 40 Jarvis St., has specifications and will receive tenders until February 26, for following contracts for York Twp. Council: 150 lengths 3 ft. cast iron pipe; 6,000 lengths 6 in. cast iron pipe; 3,000 lengths 12 in. cast iron pipe; 220 lengths 16 in. cast iron pipe; 100 tons (about) 3 in., 6 in., 12 in. and 16 in. cast iron specials; 350 6 in. gate valves; 90 12 in. gate valves; 6 16 in. gate valves; 450 hydrants; 450 round cast iron valve covers and frames.

* * *

Ottawa.—Tenders will be called shortly for approximately 21,000 lin. feet of sewer pipe (vitrified clay pipe), 6 in. to 24 in. with necessary bends and junctions, for city. A. F. Macallum, Commissioner of Works.

* * *

Montreal, Que.—Archambault & Leclair, 71-a St. James St., the general contractors for alterations to building for school at cost of \$160,000 for R. C. School Cmsn., 81 St. Catherine St. W., will receive tenders for plumbing and heating.

* * *

Calgary, Alta.—Deputy Min. L. C. Charlesworth, Dep't. Pub. Works, Prov. Gov't., Edmonton, will receive tenders for erection of Technology and Normal School estimated to cost \$500,000. Separate tenders will be received on general contract, plumbing, heating and electrical work. Plans with Prov. Architect, R. P. Blakey, Edmonton. Guarantee bond, 20 per cent.

* * *

Sherbrooke, Que.—E. W. Tobin, Bromptonville, Que., plans alterations to residence at cost of \$15,000. J. W. Gregoire, architect, Casino Bldg., Sherbrooke, is preparing plans.

* * *

Blairmore, Alta.—Burrill & Casey, architects, Central Bldg., Calgary, are preparing plans for two bungalows to cost \$6,000 each for E. J. Pozzie, Blairmore.

* * *

Blairmore, Alta.—Burrill & Casey, architects, Central Bldg., Calgary, are preparing plans for three apartment houses to cost \$30,000 each for Western Canada Collieries Co., Blairmore. Tenders will be called about February 1.

* * *

Lachine, Que.—Tenders will be received, no closing date set, for erection of store, estimated to cost \$30,000, by J. O. Tessier, owner, 118 1th Ave., and Cardinal & Beauchamp, architects, 26 St. James St.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

INGOT metals continue quiet and are inclined to be easier both on local and outside markets, and tin especially has been affected and is lower. Lower quotations are being made on copper rods, sheets and tubes. Brass goods are also showing the declines in metals, and lower prices are quoted on brass steam cocks, stops and wastes and valves.

Other declines now noted are conductor pipe and eavestrough, metallic shingles, sidings, etc., bar and wire solder, zinc sheets, cotton waste, some lines of pipe wrenches and

plumbers' torches, and also black and galvanized sheets.

Radiators and boilers, enamelled ware, closets, range boilers, soil pipe, and fittings are unchanged. Some of these were revised at the first of the year. Pipe prices are holding as are bar iron and steel.

At this time of the year trade is usually quiet, but a fair amount of business is reported for the season, and when building is resumed it is expected that sales will show a further improvement.

MONTREAL MARKETS

MONTREAL, January 29.—Price changes are not as numerous in the past two weeks as have been shown in some of our recent issues. Trimo wrenches are 10 per cent. lower than formerly. Copper rods, sheets and tubes have declined, and cotton wastes are now priced at reductions. Some lines of compression goods, galvanized sheets and both wire and bar solder show declines, also zinc sheets. Soil pipe, enamelled ware, closets, pipe and fittings, corrugated sheets, boilers and radiators remain at recent declines. Ingot metals are somewhat easier owing to a slump in the outside markets.

Trimo Wrenches Lower

Montreal.
TRIMO WRENCHES.—A reduction of 10 per cent. is quoted on Trimo wrenches, the new discount being 35 per cent. off list.

Decline in Copper Goods

Montreal.
COPPER.—A reduction of two cents is quoted on copper rods, sheets and tubes. Copper rods are now 32 cents base, plain sheets at 34 cents, tinned 38 cents, polished and tinned 42 cents. Tubes are now selling at 49 cents base.

Scrap Metals Dull

Montreal.
WASTE MATERIALS.—Dealers report business very dull in waste materials, with no price changes in evidence. Quotations are as follows:

Dealer's Buying Prices

Automobile tires	0 75	....
Yellow brass	0 07	....
Red brass	0 12½	....
Light brass	4 50	....
Scrap zinc	0 05	....
Lead, heavy	4 00	....
Lead, tea	2 50	....
Light copper	9 00	....
Heavy copper	11 50	....
Wrought iron, R. Rd., No. 1, per gr. ton	13 00	....
Malleable scrap (ton)	15 00	....
Pipe scrap (ton)	9 00	....
Heavy melting steel	15 00	....
No. 2, busheling	5 00	....

Boiler plate	12 00	....
Stove plate (ton)	20 00	....

No Change in Corrugated Sheets

Montreal.
CORRUGATED SHEETS.—No price changes are noted in corrugated sheets, a few shipments are being made but generally business is very quiet. Local prices are:

Corrugated Sheets—	Per 100	Sq. Ft.
No. 28 gauge	12 00	....
No. 26 gauge	12 75	....
No. 24 gauge	18 75	....
No. 22 gauge	22 25	....
No. 20 gauge	26 50	....
No. 18 gauge	32 75	....
Less 7½%		
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.		

Waste is Reduced

Montreal.
WASTE.—The decline in waste and wool packings runs from 3 cents to 5 cents a pound. A reduction was foretold in last issue, but price lists were not available until this week.

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 18½
XX	0 17½
X	0 16½
XLOR	0 16½
Empire	0 15½
X Press	0 13½
6X Special	0 12

COLORED	
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

WOOL PACKING	
Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 20
Colored Cotton	0 15
Above lines subject to trade discount for quantity.	

Changes in Compression Goods

Montreal.
COMPRESSION GOODS.—Several lines of compression goods have been revised to lower levels, compression bath cocks show a decline of about 10 per cent., standard flatway stop and waste also have the same reduction. Brass steam cocks are lowered, and radiator valves have the new prices. Quotations are:

Compression work, standard	Less 25%
Fuller work, standard	30%
Bath cocks, compression	30/5%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, stand.	35%
Brass steam cocks, 3 in. and smaller.	30%
Brass steam cocks, 3½ and 4 in.	Net list
Globe angle and check valves	20%
Do., twin check	25%
J. M. T.	Plus 10%
J. M. T. C.	Net
Standard Gate Valve	5%
Radiator valves, standard	40%
Do., removable disc	50%
Basin cocks, No. 1 and 2, Fuller pattern	30%
Do., quick opening	28%

Some Sheets Lowered

Montreal.
SHEETS AND PLATES.—U. S. standard sheets show a slight reduction this week. The situation of these is rather unsettled at present, and different quotations are made by the different jobbers. Stocks are fairly heavy in the different warehouses, orders now being filled that have been long standing. A further reduction is looked for, but at present it is probable that stocks will

have to be reduced before any lower price can be quoted.

BLACK SHEETS—

10 gauge	11 25
12 gauge	11 25
14 gauge	11 25
16 gauge	11 25
18-20 gauge	11 25
22-24 gauge	11 50
26 gauge	11 50
28 gauge	11 50

GALVANIZED SHEETS—

U.S. Standard—		
10½ gauge	11 75	
28 gauge	11 25	
26 gauge	11 00	
22 and 24 gauge	10 85	
20 gauge	10 65	
18 gauge	10 65	
16 gauge	10 50	
English Standard—		
28 gauge	13 00	12 00
26 gauge	12 75	11 75
24 gauge	12 15	11 35
22 gauge	11 80	10 90
18 and 20 gauge	11 10	10 75

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

No Change in Range Boilers

Montreal.

RANGE BOILERS.—The different sizes of range boilers are holding at the recent declines. Sales of these have increased a little during the last two weeks, and it is expected the demand will gradually become greater as the spring approaches.

RANGE BOILERS—

	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	
35-gallon	15 00		
40-gallon	17 00	19 00	
52-gallon	24 00		
66-gallon	32 00		
82-gallon	42 00		
100-gallon	50 00		
120-gallon	60 00		

No Change in Enamelled Ware

Montreal.

ENAMELLED WARE.—There is no change to report on enamelled ware, either in price or in volume of sales. Business continues quiet and local jobbers are anxiously awaiting building operations to commence in the spring.

Sinks, roll rim, 18x30 in.	19 55
Sinks, flat rim—	
16 x 24	\$6 38 \$6 29 \$6 20
18 x 30	7 40 7 31 7 22
20 x 30	8 41 8 33 8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	\$43 69
Bath tubs, 5½ feet	48 54
Lavatories—	
17x19" Apron F139 or P4045	13 00
18x24" Apron F154 or P3845 or P3847	20 06
18x21" Apron F169 or P4205	14 96
17x19" Roll Rim, F241 or P4345	10 71

Prices on Closets Hold

Montreal.

CLOSETS.—The same situation applies to closets as to enamelled ware, dealers report sales seasonably small and greater activity is not looked for to any great extent until building operations commence.

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enamelled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75

Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enamelled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Same List on Pipe

Montreal.

WROUGHT PIPE.—Stocks of piping are now quite ample to meet the present day requirements, deliveries gradually improving during the quiet months. Small sales are being made to the outside dealers, and it is expected business will now improve, as previously stocks were not heavy enough to meet the demand. Following are the quotations:

**LIST NO. 48.
Standard Butt Weld Pipe
Per 100 Ft.**

	Blk.	Galv.	Gen. Wrought Iron	Blk.	Galv.
1/8	\$ 6.50	\$ 8.50	\$	\$	\$
1/4	5.31	7.41	5.91	8.01	
3/8	5.31	7.41	5.91	8.01	
1/2	7.10	8.63	7.95	9.48	
3/4	8.80	10.87	9.95	12.02	
1	13.01	16.07	14.71	17.77	
1 1/4	17.60	21.74	19.90	24.04	
1 1/2	21.04	25.99	23.79	28.74	
2	28.31	34.97	32.01	38.67	
2 1/2	44.75	55.28			
3	58.52	72.29			
3 1/2	74.06	90.62			
4	87.75	107.37			

**Standard Lap Weld Pipe
Per 100 Ft.**

	Blk.	Galv.	Gen. Wrought Iron	Blk.	Galv.
2	\$32.01	\$ 38.67	\$ 35.71	\$ 42.37	
2 1/2	48.26	58.79	54.11	64.64	
3	63.11	76.38	70.76	84.53	
3 1/2	75.90	92.46	85.10	101.66	
4	89.93	109.55	100.83	120.45	
4 1/2	1.05	1.29	1.30	1.54	
5	1.22	1.50	1.52	1.80	
6	1.58	1.95	1.97	2.33	
7	2.06	2.53	2.53	3.01	
8L	2.16	2.66	2.66	3.16	
8	2.49	3.07	3.07	3.64	
9	2.98	3.67	3.67	4.36	
10L	2.77	3.41	3.41	4.05	
10	3.56	4.39	4.39	5.21	

Iron and Steel Dull

Montreal.

BAR IRON AND STEEL.—Business is very quiet when applied to iron and steel. Stocks in the jobbers' warehouses have accumulated until now they are well stocked, the demand being as stated very light.

Common bar iron, 100 lbs.	4 55
Refined iron	6 05
Iron finish machinery steel	4 60
Mild steel	4 55
Single reeled machinery steel	6 80
Band steel	4 55
Spring steel	6 00
Sleighshoe steel	4 55
Tire steel	4 75
Toe calk steel	5 45
Harrow tooth steel	4 70
Mining tool steel, per lb.	24½
Black Diamond tool and cast steel per lb.	24½

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Changes in Lead Products

Montreal.

LEAD PRODUCTS.—Lower prices are now quoted on several lines of lead products since the last issue of Sanitary Engineer. Solders, both wire and bar, have declined 1½ cents a pound. Zinc sheets both in casks and broken lots also show a reduction of 1 cent per pound. Prices now quoted are:

Lead pipe, per 100 lbs.	13 50
Lead waste, per 100 lbs.	14 50
Note—Lead pipe is subject to a discount of 10%	
Lead traps and bends	Net list
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 10½
Do., 4 to 8 lbs., sq. ft.	0 10

Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 28
Do., strictly, lb.	0 26
Do., commercial, lb.	0 23
Do., wiping, lb.	0 23½
Wire solder—	
40-60	0 28½
45-55	0 30½
50-60	0 32½
Zinc sheets, casks	0 14½
Do., broken lots	0 15½

Fittings Unchanged

Montreal.

FITTINGS.—There is a fair demand for fittings at the present season. Stocks are in very good shape and demand is expected greater now that all lines and sizes can be procured.

Bushings, cast	Less	20%
Do., malleable		20%
Flanges		20%
Plugs		17½%
Flange unions		7½%
Malleable unions		32½%
Nipples, black or galvanized up to 4 in.		50%
Do., 4½ in. or larger		40%
Do., running thread, 4 in. and under		30%
Couplings, 4 in. and under		20%
Do., 4½ in. and larger		Net list
POUND GOODS—	Black	Galv.
Class B	0 20	0 28
Class C	0 13	0 20
Add 17½%.		

Tin Plate Sells Well

Montreal.

TIN PLATE.—Sales are continuing good on tin plate, due, as stated in our last issue, to the sap season coming on. Prices remain as quoted and are: 20 x 28 x 112 coke, \$25.50 case; 20 x 28 x 56 charcoal, \$13.60 a case.

Radiators and Boilers Quiet

Montreal.

RADIATORS AND BOILERS.—The revised prices which came into effect at the beginning of the year still hold for radiators and boilers. Trading in these lines is normal, considering the time of year. Quotations are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 40% for hot water and 41% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 50 off list.

Square or sectional hot water or steam boilers, 15-in., list price.

For Ontario Government trimmings add 5 per cent. to list.

Square or sectional water boilers, 19-in. to 36-in., 2½ per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., list price. Ontario Government trimmings, add 5 per cent.

Square or sectional water or steam boilers, 48-in., list prices. Ontario Government trimmings, add 5 per cent.

Round steam boilers, standard trimmings, 5 per cent. off. Ontario Government trimmings, list price.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Soil Pipe Unchanged

Montreal.

SOIL PIPE.—Prices on soil pipe remain at the new lower prices. There is a steady movement in these lines, small sales continuing to be forwarded. Quotations are as under:

SOIL PIPE (medium and extra heavy)—	
2, 3, 10%; 5 and 6-inch, 15% discount.	
4-inch, 20% discount.	
8 inch, add 20% to list.	
FITTINGS—	
2 to 6 inch fittings, 40 per cent. discount.	
8-inch, net.	

Ingot Metals Easier

Montreal.

INGOT METALS.—Metals this week are featured by the continuation of the slump on the London market, this affecting tin more so than the others; however, it has its very unsettling result on the markets generally.

TIN.—As stated, the slump in London has greatly affected tin. This metal has dropped £40 in the last ten days. It is very hard to state at present whether price will continue to decline or not. The local price is now 39 cents.

COPPER.—Copper is much easier in London and slightly lower in New York. The demand seems to have quieted down during the past week. Prices quoted

are 19 cents for electro and 18½ cents for casting.

LEAD.—This metal has held fairly well considering the weakness elsewhere. At present there is no sign of any lower price. Local price 7½ cents.

SPELTER.—Spelter has declined in London and United States, touching the new low point in U.S.A. of 5¼ cents. Local price 7¼ cents.

ANTIMONY.—Lessened imports have had a very strengthening effect on antimony. Local price 8½ cents.

ALUMINUM.—There is nothing new to report on aluminum, it remaining quiet and unchanged. Local price 34½ cents.

TORONTO MARKETS

TORONTO, Jan. 29.—The last two weeks have brought out a few important price changes in plumbing and steam fitting goods, although generally conditions appear steadier.

New lists and discounts issued on conductor pipe and elbows, eavestrough, etc., show a considerable reduction. Pipe fittings have been revised and are lower. Reductions have been made in prices of some compression goods, and steam cocks, stop and waste cocks, and various valves are showing declines. Some lines of solder are lower, but lead products as a whole are steadier. New prices have been made on cotton waste and show reductions of from one to five cents per pound. Some pipe wrenches and plumbers' torches are also lower. Soil pipe, radiators and range boilers are holding at recent declines. Enamelled wares are also holding, but the tendency appears to be towards further revisions. Sheets and plates are showing lower quotations, but bar iron and steel together with wrought pipe are holding unchanged. Business is naturally on the quiet side at this time of the year, but a very fair amount of sales are reported in different quarters.

Radiators, No Further Changes

Toronto.

RADIATORS.—Sales are reported as seasonably light on these goods now. Prices are holding at the change made at the beginning of the year, and 40 per cent. is quoted off list for hot water, and 41 per cent. for steam. Wall radiators are 39 per cent. off list. Lists are the following:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 40% for hot water and 41% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%

Soil Pipe Prices Hold

Toronto.

SOIL PIPE.—New quotations were announced in the last issue on soil pipe and fittings. The discount on the 8 inch pipe and fittings should have read 5 per cent on list, instead of 5 per cent. off list. The demand is light now, but this is expected at this time of the year. Discounts are as follows:

SOIL PIPE (medium and extra heavy)—

2 and 3 inch, 10%.

4 inch, 20%.

5 and 6 inch, 15%.

8 inch, add 5 %.

FITTINGS—

2 to 6 inch fittings, 40%.

8 inch fittings, plus 5%.

Conductor Elbows Down

Toronto.

CONDUCTOR ELBOWS.—New lists and discounts are issued on conductor elbows, and constitute a reduction from the previous quotations of from 5 to 10 per cent. New prices on plain, ribbed and corrugated elbows are as follows:

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list \$5 25

3 inch, list 6 00

4 inch, list 10 50

5 inch, list 24 00

6 inch, list 29 00

Less 50%.

Eavestrough Reduced

Toronto.

EAVESTROUGH.—The changes in prices of eavestrough which were forecast in the last issue of Sanitary Engineer have been made and new lists and discounts are announced. The reductions amount to about 17 per cent. Following are the new quotations:

TROUGH (Eave)

O. G., Square Bead and half round.	Size in girth:	Per 100 ft.	Per 100 ft.
8-in.....	\$15 90	15-in.....	\$28 80
10-in.....	\$17 70	18-in.....	\$36 50
12-in.....	\$21 20		
Less 50/10 per cent.			

Conductor Pipe Now Lower

Toronto.

CONDUCTOR PIPE.—New prices for conductor pipe show a reduction of approximately 17 per cent. New lists have been issued and discount is now 50 and 10 per cent. off list.

Only a light demand is experienced for the commodity at the present time.

PIPE (Conductor)

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.	
2 in., in 10-ft. lengths, list	\$18 40	
3 in., in 10-ft. lengths, list	22 30	
4 in., in 10-ft. lengths, list	29 60	
5 in., in 10-ft. lengths, list	40 00	
6 in., in 10-ft. lengths, list	49 00	
Less 50/10%.		

Wrought Pipe Prices Hold

Toronto.

WROUGHT PIPE.—No changes have been made in pipe prices, although a new list, No. 48, was issued January 3rd, on account of the change in freight rates.

Improvements in deliveries from the mills are reported, and for the season of the year, and considering that there is such a small amount of new building under construction there is a very good demand.

Present quotations are as below.

LIST NO. 48.

Standard Butt Weld Pipe

	Per 100 Ft.				
	Steel	Gen. Wrought Iron			
	Blk.	Galv.	Blk.	Galv.	
¾	\$ 6.50	\$ 8.50	\$.....	\$.....	
¾	5.31	7.41	5.91	8.01	
¾	5.31	7.41	5.91	8.01	
¾	7.10	8 63	7.95	9.48	
¾	8.80	10.87	9.95	12.02	
1	13.01	16.07	14.71	17.77	
1½	17.60	21.74	19.90	24.04	
1½	21.04	25.99	23.79	28.74	
2	28.31	34.97	32.01	38.67	
2½	44.75	55.28			
3	58.52	72.29			
3½	74.06	90.62			
4	87 75	107.37			

Standard Lap Weld Pipe

	Per 100 Ft.				
	Steel	Gen. Wrought Iron			
	Blk.	Galv.	Blk.	Galv.	
2	\$32.01	\$ 38.67	\$ 35.71	\$ 42.37	
2½	48.26	58.79	54.11	64.64	
3	63.11	76.88	70.76	84.53	
3½	75.90	92.46	85.10	101.66	
4	89.93	109.55	100.83	120.45	
4½	1.05	1.29	1.30	1.54	
5	1.22	1.50	1.52	1.80	
6	1.58	1.95	1.97	2.33	
7	2.06	2.53	2.53	3.01	
8L	2.16	2.66	2.66	3.16	
8	2.49	3.07	3.07	3.64	
9	2.98	3.67	3.67	4.36	
10L	2.77	3.41	3.41	4.05	
10	3.56	4 39	4.39	5.21	

Malleables Are Revised

Toronto.

PIPE FITTINGS.—A good movement for this time of the year is reported on malleable fittings. Prices show slight revisions and are the following:

PIPE FITTINGS

Cast iron fittings	10%
Plugs	20%
Bushings	25%
Unions, ¼ in. to 2 in.	35%
Do., ¼ in., 2½ in. to 4 in.	30%
Dart-Unions, blk., ¼ in. to 2 in.	20%
Do., ¼ in., 2½ in. to 4 in.	8%
Do., galvanized, add to black	30%
Nipples, black and galvanized, ½ to 4 in.	60%
Do., 4½ in. and larger	40%

Do., running thread	20%
Couplings, 4-in. and under	20%
MALLEABLE FITTINGS	
Class A	0 60 0 75
Class B	0 26 0 36
Class C	0 17 0 26

Wares Show No Change

Toronto.
ENAMELLED WARE.—Although this is usually regarded as a quiet time of the year for the enamelled ware business, a very fair amount of sales are reported in several quarters.

Prices are unchanged but the trend is downwards, and it is thought possible that there may be a reduction in prices in the near future.

Although it is not an infallible guide to the tendency of Canadian markets it is noted that reductions have just been made in U. S. ware markets.

Following are list prices, less 20 per cent, except where noted.

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	\$51 40
Bath tubs, 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16 25
Do., do., 5½ ft., net.	17 50
Lavatories—	
18x24" Apron F164 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205.....	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345.....	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Closet Prices Are Held

Toronto.
CLOSETS.—No changes are announced in closet prices, and the tendency is for these to follow wares. Business is quiet, but not exceptionally so.

Following are present quotations:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
17x10" Apron F139 or P4045	15 30
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enamel-iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Compression Goods, Lower Quotations

Toronto.
COMPRESSION GOODS.—Following the forecast in the last market report revisions have been made in several of these lines and prices are lower in many cases. Brass steam cocks have been reduced about 10 per cent, and stop and waste cocks have also the same reduction. Some makes of valves show a decline of about 20 per cent.

Following are the present quotations:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	28-30%

Flatway stop and waste cocks, standard..	25%
Roundway stop and waste cocks, standard	25%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J.M.T.	10%
J.M.T. C.	20%
Gate or straightway	7/10%
Jenkins gate valve	7/10%
Standard gate	list plus 5%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Quick opening	28%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Furnaces Still in Demand

Toronto.
FURNACES AND STOVES.—A very fair demand is reported for furnaces, and many enquiries are being received by manufacturers. There seems to be a desire on the part of retailers to get in on the business that is being offered by the sale of furnaces. There was an inability last fall to cope with the demand and many orders were delayed, but Sanitary Engineer is informed that very few cancellations were received and that dealers in most cases readily accepted overdue orders.

The demand for heating stoves has slowed up and with a continuance of mild weather there appears to be small prospect of any increase in business this season.

Prices show no change and are holding firm.

Fair Sales Range Boilers

Toronto.
RANGE BOILERS.—A fairly good movement of these goods is reported, and the 30 and 35 gallon sizes are most in demand.

Sales are being made at the reduced quotations noted in the last market report and are as follows:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Some Lead Products Easier

Toronto.
LEAD AND ZINC PRODUCTS.—Prices are holding at recent declines on most lead products, but solders are showing a further reduction and wire solder is now quoted at 26½ to 28 cents for 40-60, and 29 to 31 cents according to quantity, for 50-50.

Calking lead is now quoted at 8½ to 9½ cents.

Whether prices of lead products will show any further declines in the near future is uncertain, but outside markets in pig lead are inclined to be a trifle firmer, and a curtailment of operations on the part of some of the largest American producers and the closing down of some of the large mines, which are reported to have suspended operations, has tended to stiffen the market.

A fairly brisk demand for lead products is reported.

Quotations are the following:

Lead pipe, list, per lb.	0 13½
Lead waste pipe, list, per lb.	0 14½
Do., over 8 in., list, per lb.	0 15½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	Net
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	0 36
Solder, wire, lb.	0 26½
Do., 40-60	0 28
Do., 50-50	0 31
Do., strictly, lb.	0 27
Do., commercial, lb.	0 24½
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 25
Zinc sheets, per lb.	0 16½
Calking lead	0 09½

Cotton Waste Now Lower

Toronto.
COTTON WASTE.—The new prices on cotton waste show declines of from 1 to 4 cents per pound, according to quality. The change was announced in last issue of Sanitary Engineer, but the new prices were not then available and have since been issued. Trade is reported quiet in this commodity at present.

Following are the new quotations:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 21
XX	0 19½
X	0 17½
XX, grad.	0 17½
XLCR	0 15
X Empire	0 16
X Press	0 13½
XC	0 16½
COLOR	
No. 1	0 14½
No. 7	0 13½
No. 1A	0 12½
No. 1B	0 11½
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09
Above lines subject to trade discount for quantity.	

Bar Iron Differential Reverts

Toronto.
BAR IRON AND STEEL.—Business continues quiet in bar iron and steel and stocks are usually fairly light. The differential between ¼ inch and heavier, and 3-16 inch and lighter, which a short while back was changed from 50 to 75 cents per cwt., has again reverted back to 50 cents per 100 lbs.

Following are current quotations:

IRON AND STEEL	
Common bar steel, 3-16 in. and lighter...\$	5 25
Common bar iron, 3-16 in. and lighter...	5 25
Common bar iron, ¼-in. and heavier	4 75
Angle base	4 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 25
Spring steel	12 75
Mining drill steel	28 00
Common cast tool steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Metal Shingles Etc., Lower

Toronto.
METAL SIDINGS, SHINGLES, ETC.—Reductions have been made in the prices of metallic roofings, shingles, sidings, etc., and the decline is approximately 10 per cent.

Business is said to be quiet in these lines at present.

Trimo Wrenches are Down

Toronto.
WRENCHES.—A reduction has been made in the price of the Trimo wrench,

and this is now quoted at 35 per cent. off list. Stillson wrenches are quoted at 40 per cent. off for the Canadian pattern.

Sheets and Plates Lower

Toronto.

SHEETS AND PLATES.—Further reductions are announced in the price of both black and galvanized sheets this week, and are believed to be the result of a desire to reduce warehouse stocks. Quotations are showing a considerable variation, but are usually lower than they have been for a long while.

In outside markets there is a slowing down of production except on the part of the Steel Corporation, which up to the present has been able to maintain operations.

A study of Pittsburgh markets shows that galvanized sheets have remained practically unchanged for the past five weeks, and while prices are about 25 per cent. below the average price of last year, they are about 50 per cent. above the mean average of the four years from 1913 to 1916.

The following are wholesaler's quotations here:

BLACK SHEETS		
14 gauge	6 70	7 70
16 gauge	6 75	7 75
18-20 gauge	6 80	7 80
22-24 gauge	6 85	7 85
26 gauge	6 90	7 90
28 gauge	7 00	8 00

PLATES		
10 gauge plate	6 20	
12 gauge	6 25	
14 gauge	6 30	
16 gauge	6 40	

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS		
Premier and Apollo		
10 3/4 oz.	9 30	10 50
U. S. 26 gauge	9 00	10 20
U. S. 26 gauge	8 75	9 95
22 and 24 gauge	8 55	9 70
18 and 20 gauge	8 40	9 55
16 gauge	8 40	9 55
12 and 14 gauge	8 25	9 40

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Plumbers' Torches Reduced

Toronto.

GASOLINE TORCHES.—Some lines of plumber's gasoline blow torches show reductions in price.

Corrugated Sheets Held

Toronto.

CORRUGATED SHEETS.—Sales are being made on corrugated sheets at the reductions noted in the last market report.

Business is usually quiet on these lines at this period and this season is no exception.

Quotations are the following:

CORRUGATED SHEETS—		
	Per 100 sq. ft.	
No. 28 gauge	10 50	
No. 26 gauge	11 25	
No. 24 gauge	16 00	
No. 22 gauge	19 00	
No. 20 gauge	22 00	
No. 18 gauge	28 00	

Less 7 1/2%.
For 1 inch corrugation add 50c per square extra.

Oakum Quiet; No Change

Toronto.

OAKUM.—Prices are unchanged on plumbers' oakum and quotations are \$4.75 per 50 lb. bale and 12 cents for small quantities.

Sales are seasonably light.

No Change in Boiler Tubes

Toronto.

BOILER TUBES.—Quotations are unchanged on boiler tubes, but it is possible to get slightly lower prices for a fair sized order. Business is light and sales are small in size. Prices are as below:

BOILER TUBES—		
	Seamless	Lapweld
1 inch	\$28 00	\$....
1 1/4 inch	32 00	....
1 1/2 inch	33 00	....
1 3/4 inch	35 00	....
2 inch	35 00	30 00
2 1/4 inch	38 00	32 00
2 1/2 inch	46 00	36 00
3 inch	54 00	45 75
3 1/2 inch	70 00	49 00
4 inch	96 00	63 00

Turpentine is Lower

Toronto.

TURPENTINE AND LINSEED OIL.—\$1.45 is quoted for turpentine in 5 gallon lots, and \$1.22 for raw linseed oil. For barrel lots quotations are 15 cents per gallon less. No change has been made in quotations on white lead in oil, or red dry lead, and prices are as last market quotations.

Scrap Materials Remain Quiet

Toronto.

WASTE MATERIALS.—The waste material markets have been exceedingly slow, but inquiries are coming to hand in better volume and prospects seem stronger. In the scrap iron market prices have been unchanged and little purchasing interest has been shown. Dealers believe that an increase in demand will be felt in a few weeks. Conditions are believed to be on the mend with the worst of depression over, and that business will come back very shortly.

The following average prices for large quantities are strictly nominal:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	19 00	20 00
Scrap pipe	8 00	9 00

Yellow brass	6 00	7 00
Red brass	10 00	....
No. 1 machinery cast	24 00	25 00
Heavy melting steel	15 00	16 00
Heavy copper	10 50	11 50
Light copper	8 00	9 00
Scrap zinc	4 00	4 50
Light brass	4 25	4 75
R.Rd. wrought iron, No. 1, per gr. ton	13 50	14 50
Heavy lead pipe	4 00	4 50
Old rubbers, boots and shoes	2 00	3 00
Overseas lumbermen's rub. boots	1 50	2 00
Bicycle tires	0 01	0 01 1/2
Automobile tires	0 50	1 00
Tea lead	2 00	2 25

Ingots Dull; Tin Irregular

Toronto.

INGOT METALS.—Markets are reported as dull again in ingot metals and fluctuating from day to day. Tin especially has been erratic and after declines on London markets has rallied only to fall again. It is the only metal this week showing a change here, and has dropped two cents.

COPPER.—In outside markets this metal has had a lull and business is reported to be quieter again. Values are nominally unchanged but advices from New York indicate a cessation of the export demand. Quotations locally are unchanged from 19 cents for casting copper.

TIN.—Very erratic describes this metal and present quotations here are down two cents from last market report. Prices fell following weakness in London tin markets. Prices here are quoted at 45 cents.

LEAD.—This is stated to be dull and unchanged. Some outside markets are reported easier and others are a trifle firmer. It is anticipated that lead markets may have a bullish tendency as it is stated that American producers have greatly curtailed operations and a large number of the Broken Hill Mines have suspended operations. Quotations hold here at \$7.00.

SPELTER.—The market is dull in spelter and shows no change from previous quotations at \$7.50.

ANTIMONY.—Quotations are holding unchanged at 8 to 9 cents on antimony, and the metal is quiet.

ALUMINUM.—Prices are holding unchanged at 35 to 37 cents. Outside markets are reported easier in this metal.

WINNIPEG MARKETS

WINNIPEG, Jan. 29.—Few reductions are noticed in plumbing and steamfitting lines during these past two weeks. There is a feeling, however, that some lower prices are due on these goods and may shortly occur, but at present most quotations are holding firm. Soldering coppers have been reduced in price, and steam and hot water boilers are now lower. Business continues quiet in practically all lines, but this is characteristic of the season of the year in the trade.

Radiators and Boilers Reduced

Winnipeg.

RADIATORS AND BOILERS.—Although all prices were withdrawn on radiators and boilers previous to the first of the year, manufacturers issued new

discounts off the list for all lines. These new prices showed reductions on all lines, although there has been no reduction in the price of raw material, but rather increased in some cases. However, it was thought advisable to establish a new



MUELLER Bath Cocks and Basin Cocks

In Rapidac, Self-Closing and Compression Construction

The most important part of any plumbing job is the brass goods. Unless they are right, the whole job will be a disappointment to you and to your customers.

MUELLER Bath Cocks and Basin Cocks are right in design, right in manufacture, and right in finish—there is no higher standard in brass goods than those that bear the name **MUELLER**. Styles A-1500 and A-1400 above, and Styles A-2389 and A-2385 below.

Use **MUELLER** Brass Goods throughout on every job and insure dependable service and lasting satisfaction.

Write for catalog and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.



lower selling price to remain unchanged during the present year.

Corrugated Lower in Price

Winnipeg.

CORRUGATED IRON.—The price has been reduced this week on corrugated iron and the following prices are now quoted:

Galvanized—28 ga., \$9.90 per 100 lbs.; 26 ga., \$10.56. Painted—28 ga., \$7.65; 26 ga., \$9.

Sheets and Plates Hold

Winnipeg.

SHEETS AND PLATES.—There is little or no demand for sheets and plates and the price remains unchanged.

Black Sheets—10 ga., \$8.80; 12 ga., \$8.80; 14 ga., \$8.85; 16 ga., \$8.95; 18 ga., \$9.45; 20 ga., \$9.45; 22 ga., \$9.50; 24 ga., \$9.50; 26 ga., \$9.55. Galvanized Sheets—16 ga., \$10.60; 18 ga., \$10.75; 20 ga., \$10.75; 22 ga., \$10.90; 24 ga., \$10.90; 26 ga., \$11.05; 28 ga., \$11.65

Soldering Coppers are Lower

Winnipeg.

SOLDERING COPPERS.—The prices have again been reduced on soldering coppers and are quoted this week as follows:

3 lbs. and over, 52c per lb.; 2½ lbs. and over, 53c per lb.; 2 lbs. and over, 54c per lb.; 1½ lbs. and over, 55c per lb.; 1 lb. and over, 60c per lb.

Improvement in Pipe Situation

Winnipeg.

PIPE.—There is a remarkable improvement in pipe conditions and before long stocks will be in very good shape. Deliveries are now being made on smaller sizes of galvanized piping, the scarcity being felt more particularly on these. As the demand is not very great at this season of the year it is thought that both manufacturers and jobbers will have a stock accumulated and prices will have a tendency to come down.

Black Pipe—F.O.B.

Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
1/8 in.	\$6 21	\$0 30	\$0 20	\$0 17	\$0 11
1/4 in.	5 94	0 53	0 34	0 30	0 19
3/8 in.	5 12	0 70	0 45	0 40	0 26
1/2 in.	5 24	1 05	0 67	0 59	0 38
3/4 in.	10 22	1 40	0 90	0 79	0 51
1 in.	15 08	2 08	1 34	1 17	0 75
1 1/4 in.	20 43	2 80	1 80	1 57	1 00
1 1/2 in.	24 48	3 35	2 15	1 88	1 21
2 in.	32 94	4 50	2 88	2 52	1 62
2 1/2 in.	53 33	7 18	4 60	4 02	2 68
3 in.	70 07	9 42	6 03	5 28	3 39
3 1/2 in.	88 20	11 25	7 20	6 30	4 05
4 in.	104 40	12 33	8 53	7 46	4 80
4 1/2 in.	124 20	15 61	10 04	8 75	5 62
5 in.	144 90	18 12	11 60	10 15	6 52
6 in.	188 10	23 45	15 00	13 14	8 44
7 in.	274 50	29 09	18 62	16 28	10 46
8 in.	288 90	31 25	20 00	17 50	11 25
9 in.	397 80	42 20	26 96	23 59	15 16
10 in.	369 00	40 00	25 60	22 40	14 40

Galvanized Pipe

Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
1/8 in.	\$8 69	\$0 30	\$0 20	\$0 17	\$0 11
1/4 in.	8 28	0 53	0 34	0 30	0 19
3/8 in.	8 46	0 70	0 45	0 40	0 26
1/2 in.	9 95	1 05	0 67	0 59	0 38
3/4 in.	12 51	1 40	0 90	0 79	0 51
1 in.	18 50	2 08	1 34	1 17	0 75
1 1/4 in.	25 02	2 80	1 80	1 57	1 00
1 1/2 in.	29 93	3 35	2 15	1 88	1 21
2 in.	40 28	4 50	2 88	2 52	1 62
2 1/2 in.	65 39	7 18	4 60	4 02	2 68
3 in.	86 40	9 42	6 03	5 28	3 39
3 1/2 in.	107 10	11 25	7 20	6 30	4 05

4 in.	126 90	12 33	8 53	7 46	4 80
4 1/2 in.	152 10	15 61	10 04	8 75	5 62
5 in.	177 30	18 12	11 60	10 15	6 52
6 in.	229 50	23 45	15 00	13 14	8 44
7 in.	299 09	29 09	18 62	16 28	10 46
8 in.	31 25	20 00	20 00	17 50	11 25

MR. W. J. McGUIRE DEAD AFTER SHORT ILLNESS

Toronto.—Following a short illness, W. J. McGuire died at his home, 13 Maple avenue. The late Mr. McGuire was born in Ireland in 1838 and came to Canada when very young. He was in business in this city about forty years, as plumbing and heating contractor, with branch offices in Montreal. He was predeceased by Mrs. McGuire about twenty years ago, and is now survived by two sons and two daughters. The late Mr. McGuire was known by a large circle of business acquaintances and was popular in many walks of life.

PLUMBING MATERIALS WANTED FOR SOUTH AMERICA

There is said to be an increasing demand for plumbing fixtures and appliances, including nickel-plated piping, wash-stands, and toilet ware, in Brazil, Chile, Bolivia, Colombia, Peru and

Uruguay. Before the war Germany conducted a successful trade in all kinds of plumbing materials in the above-named republics but since the war United States exporters made special efforts, and have developed an extensive business. There is, however, a favorable opportunity for British firms, by direct communication with those countries, and by close attention to local needs, to secure for themselves a considerable portion of the former German trade. The chief requirement is for British firms to realize that the principal merchants in the great South American republics are enterprising and solidly established business men, and that credit is therefore good.

Several of the larger cities in Brazil, especially the town of Santa Maria da Boccia de Monte, Rio Grande del Sul, and no fewer than fifteen cities and towns in Uruguay have decided to instal as soon as possible up-to-date water supply and drainage systems. It is understood that the respective municipal authorities would welcome proposals from British engineering and other firms which carry out such work.

Business Is Certain To Expand and Industry Will Be Quickened

Readjustment in Prices and Profits Now Going on in the Business and Industrial World
Furnishes No Justification for Pessimism

THE following extract from a general letter sent out to the sales force of a Canadian manufacturing concern, dealing with present conditions in Canada is interesting, illustrating an undivided faith in the future of Canada:—

"The readjustment in prices and profits now going on in the business and industrial world furnishes no justification for pessimism. There will be no prolonged depression. Just as soon as a stabilized basis is reached business is certain to expand and industry will be quickened. The great recession in prices and accompanying decrease in demand for goods is an inevitable aftermath of the war boom. The wonder is that it did not come sooner. Everybody knew it was coming. Some people prepared for it. Others went on as if the boom in business and the rise in prices would continue indefinitely.

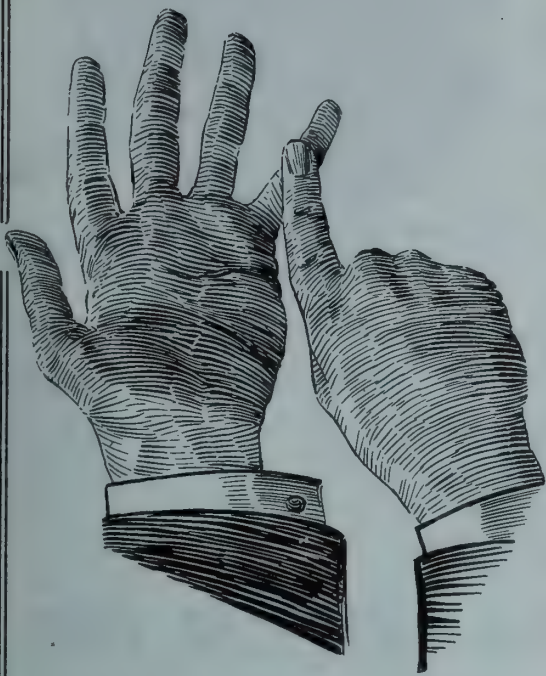
Greater Than They Are

"The readjustment process has wiped out a good many hundred millions of 'paper profits' made in the war boom and has put merchants and producers in an uncomfortable position. The discomfort and distress, however, by contrast with the wild flights of war prices, seem greater than they are.

"There is no question that fundamental things in Canada are sound—in financing, in merchandising, in industry, in agriculture. The country is rich with accumulated war profits. The crops are abundant. The banks have been foresighted in avoiding the admission of doubtful securities to their assets. The factories are equipped better than ever before to meet the demands of the country. The average scale of living is higher than ever before, which means that potential demand for goods is enormous and the present lull in buying is only temporary.

Europe Coming Back

"Anyone who feels inclined to be discouraged over the present situation and disheartened over the future should compare this country's condition with Europe's. Canada accumulated a vast wealth in the war while Europe was exhausting its goods, its men and its financial resources; yet Europe is coming back marvellously, increasing its production, strengthening its finances, restoring its business stability. All the Canadian people have to do is to wait patiently for the completion of the readjustment and then be ready for the resumption of prosperity that is as certain to come as the succeeding seasons."



Allpriser

The Reliable Price Clerk

There are five very strong arguments why Allpriser should be your price clerk, why Allpriser is a vital necessity to the welfare of your business.

The Reasons Why

Here are five reasons that bring home convincingly the merits and business insurance of Allpriser—the reliable Price Clerk:

1. Allpriser prevents errors by giving accurate pricing.
2. Reduces overhead expenses by the money saved on mistakes.
3. Saves time and worry.
4. It makes estimating easy.
5. It is inexpensive.

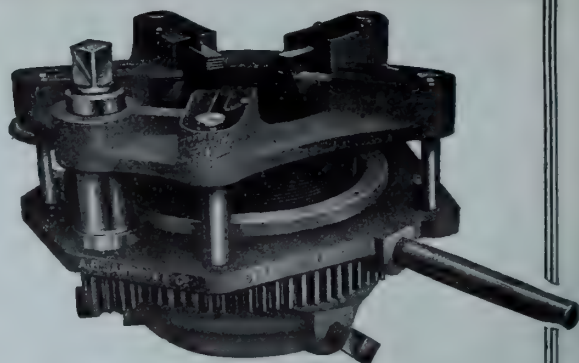
Allpriser for 7 cents a day will insure your business against errors you make in the hurry of business worries. Allpriser Service consists of a flexible, leather bound book 7 by 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest change. Write to-day for more details.

Kenneth B. Allison

4 Irwin Ave.
Toronto

JARDINE and TOLEDO PIPE-THREADING TOOLS

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or gimcracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.



"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools
in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.

Brockville and East—J. R. Devereux, 358 Beaver Hall Square,
Montreal.
Belleville and West—W. H. Cunningham & Co., 269 Richmond Street
West, Toronto, Ont.

How to Test Advertising

THE man who doubts the power of advertising belongs in the same class with the man who refuses to believe that the world is round simply because he can't get off somewhere at a distance and see its roundness for himself.

The merchant who fears to attempt advertising because he figures it as an "expense" is blind to his own interests. I personally know several men who, because they once tried advertising to the extent of a cheaply printed hand-bill and didn't find it necessary next morning to call on the police to keep the crowds of eager buyers from swamping their store, loudly and solemnly aver that "advertising doesn't pay."

Advertising *does* pay.

The most successful merchants are the merchants who believe most thoroughly in advertising and who practice their belief.

But advertising, in order to pay, has got to be *intelligent* advertising.

The day of hashed-over superlatives—"best goods," "lowest prices," "best stock in town," "greatest bargains ever heard of," and so on—has passed.

People have learned to distinguish the *truthful* advertiser from the blatant behind-the-times storekeeper who believes that, so long as *he* claims to have the best goods on earth, or under the earth, or within wireless distance of the earth, people will break their necks trying to get to his counters in the forefront of the crowd.

Put some *brains* into your advertising.

Don't let the office boy write your announcements in between his other duties.

Don't doubt the business-getting and business-building power of intelligent and informative publicity—and you will find that advertising *does* pay.

—Jerome P. Fleishman.



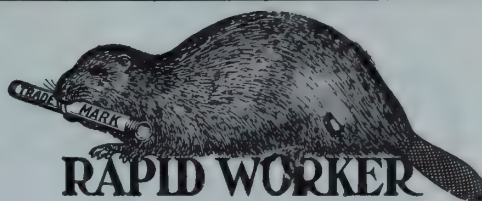
$\frac{1}{8}$ " to 1" Ratchet.

Twenty years of successful experience and the organization developed in manufacturing have enabled this Company to produce a line of pipe-cutting and threading tools constructed to the interchangeable accuracy and close limits attained for the first time in Beavers.



Cutter— $\frac{1}{2}$ " to 2".

Beavers



RAPID WORKER

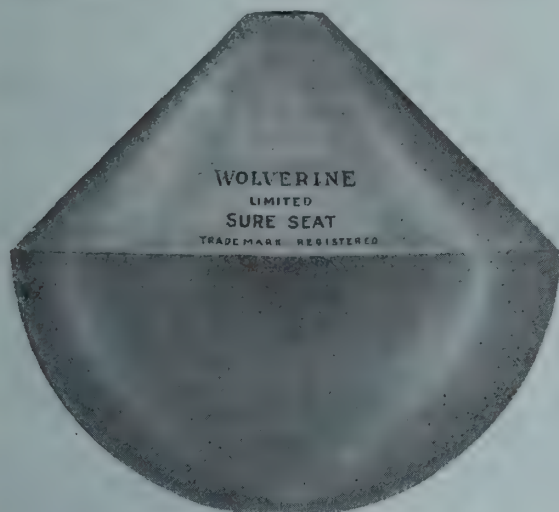
This advance in design and precision in manufacture accomplished new results in the square-cutting and threading of pipe, in time-saving and in long life of tools. Beavers are sold by the best dealers in Canada and all 'round the world.

Borden-Canadian Co.

110 Church Street, Toronto

Sure Seat Tank Balls

Made of finest Red Rubber and *Absolutely Guaranteed* to retain both shape and flexibility



Mail us your order to-day. Can ship promptly

Our full line of *Quality Rubber Goods* will give you satisfaction

WOLVERINE
LIMITED

76 NELSON ST.

TORONTO

M. & T. COILS

EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited
TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street

Practically all good buyers of Plumbing and Heating supplies in Canada are readers of Sanitary Engineer, Plumber and Steamfitter of Canada.

Fittings Limited



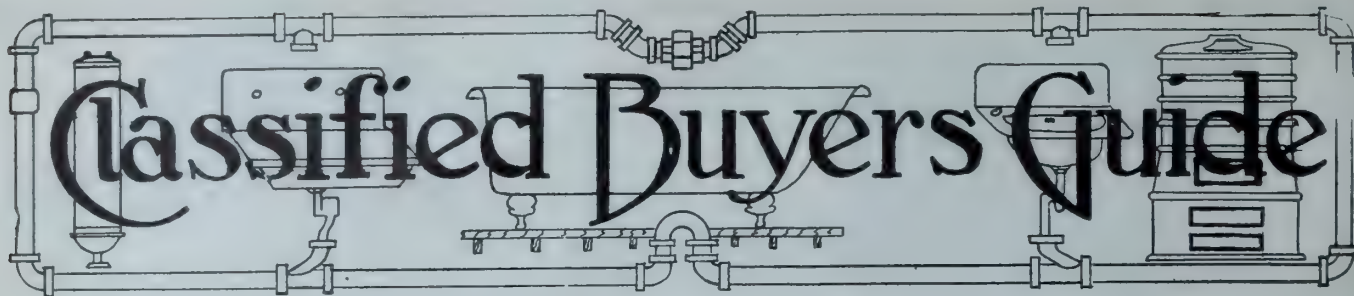
TRADE MARK



REGISTERED

Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa



Classified Buyers Guide

AIR CONDITIONING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR LINE SYSTEMS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

AIR PRESSURE TANKS

The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS

James Morrison Brass Mfg. Co., Toronto.

BOILERS, STEAM OR HOT WATER

The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trinmont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CEMENT

The Northwestern Chemical Co., Marietta, Ohio

CIRCULATORS

Atlas Engineering & Machine Co., Ltd., Toronto.

CLAMPS "C"

J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CONDENSATION UNITS

The West Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS

The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHMETERS

Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Co., Toronto, Ont.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Hotstream Heater Co., Cleveland, Ohio.

GRATES FOR RANGES, FURNACES AND BOILERS

McIntyre & Taylor, Toronto.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.

HEATERS

The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

HUMIDIFYING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC

McIntyre & Taylor, Toronto.

HUMIDIFIERS

B. F. Sturtevant & Co., Hyde Park, Mass.

KEROSENE WATER HEATERS

Hotstream Heater Co., Cleveland, Ohio.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.

LEAD

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.

PIPE, BLACK AND GALVANIZED

Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS

Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Toronto Hardware Mfg. Co., Toronto.
Warden King, Ltd., Montreal.

Display the **STACK HEATER** *and Make Profitable Sales*

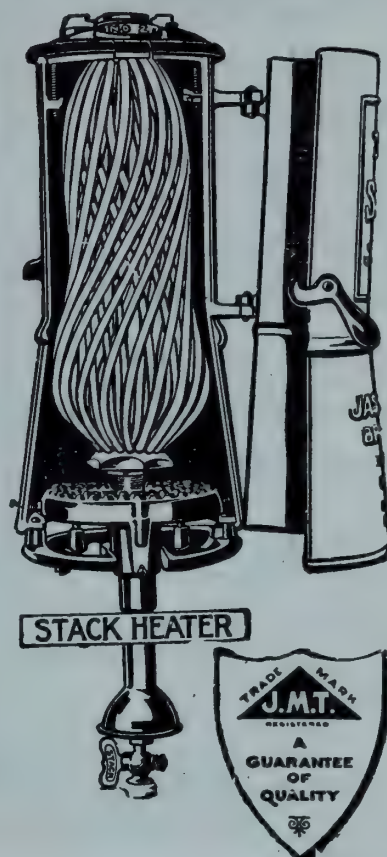
Stack Gas Water Heater has many powerful selling points. It saves gas, and gas saved is money saved.

The network of small pipes exposed to the hot gas flame will heat water quicker than one large pipe because of the greater heating surface offered. Heats water in a minute; show your prospect. No technical knowledge is necessary to see the advantage of the Stack Heater.

Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario



Over 60,000 Daisy Hot Water Boilers **Now in Use—Are *You* Selling Your Share?**



Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. McDougall & Co., Ltd., Galt.

PUMPS

The Westco Pumps Limited, Toronto.
W. H. Cunningham & Co., Toronto, Ont.

PUMPING SYSTEMS, AUTOMATIC

The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RANGE BOILERS

The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
The Simplex Mfg. Co., Chicago, Ill.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES

C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES

James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

Atlas Tank Works, Toronto.
The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS (RUBBER)

W. H. Cunningham & Co., Toronto, Ont.

TESTING PLUGS

James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams & Co., Brooklyn, N.Y.

TORCHES

W. H. Cunningham & Co., Toronto, Ont.

UNIONS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

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The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
The Westco Pumps Limited, Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.

Do You Read These Advertisements?

Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery—technical paper advertising—to present most effectively to you the leading features of its line.

These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

Don't miss your opportunities. These advertisements are interesting. Some are distinctly instructive, and a glance through them every month will keep you posted on the latest developments in Sanitary Engineer.

A VALVE for EVERY SERVICE



Fig. 106

JENKINS BRASS GLOBE VALVE

Suitable for 175 lbs. working steam pressure or 250 lbs. working water pressure.

JENKINS VALVES

for Plumbing and Heating Service

In all types and sizes—every one made to stand the severest conditions possible.

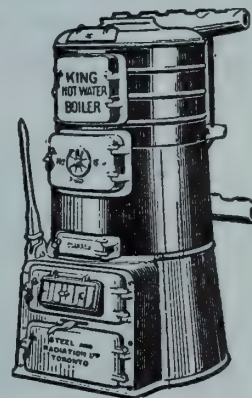
Dependability is built into every Jenkins Valve. In their manufacture the best grade of metal is used and their design provides more metal at points where the pressure and strain is greatest.

Genuine Jenkins Radiator Valves are built with the Jenkins Renewable Composition Disc, giving them practically limitless life.

Catalog No. 8 describes the complete Jenkins line. Write for free copy.



KING HOT WATER ***BOILERS*** AND ***IMPERIAL RADIATORS***



Steady Heat at Low Cost

There is no come-back when you install King Boilers and Imperial Radiators. Together they form the perfect heating system. With fuel high and hard to get and a long winter ahead you can win the gratitude of every household where you install the King Boiler.

STEEL and RADIATION, Limited

Head Office: 80 Adelaide St. E., Toronto

Sales Offices: Montreal, Toronto, Quebec

A complete stock of all lines is carried at our Montreal warehouse.
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg
Carroll Wilson, Ltd., Edmonton
T. L. Peck Co., Vancouver

HOYT

WIPING SOLDER

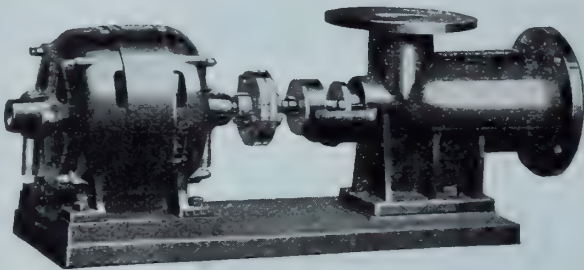
Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL

TORONTO

WINNIPEG



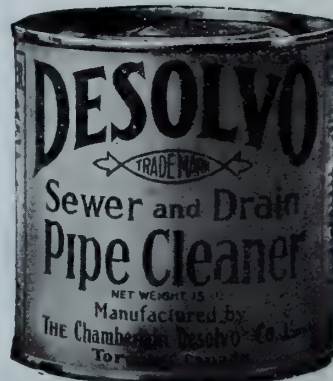
Positive Circulators

By using a Positive Circulator, a hot water heating system can be installed for about the same price as steam, on account of the large reduction in radiation and pipe sizes required, as compared with gravity hot water. The Circulator is driven by an electric motor, operated by an ordinary switch.

The Positive Circulators operate quietly and are now in use in such buildings as churches and apartment houses, giving satisfaction without noise.

Atlas Engineering & Machine Co., Ltd.

23 River St., Toronto



Clears Clogged and Frozen Pipes

That's Why It Sells

Desolvo thaws frozen pipes because when mixed with cold water it creates heat in addition to its own action. It clears clogged pipes easily and without the aggravating and expensive tearing up of house and grounds. It has many points of appeal to customers, pays a good profit and sells easily and often.

The Chamberlain Desolvo Co., Limited

109 Church St., Toronto

General Office: Pittsburg, Pa.

Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St., Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont. Western Canada Representatives: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.



\$300.00 A MONTH

That's what I am now making, after my firm took me in as a co-partner, owing to my Special Training I got with you, writes a former student.

We can INCREASE your wages, too, if you will first invest in personal preparation. With the prevailing high wages there is more and more expected from the average common TINNER.

A special training in our Wonderful courses will insure you for all future time against a cut in wages.

Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

FULL INFORMATION FREE, WRITE TONIGHT

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. KOTHE, Prin.

St. Louis, Mo.



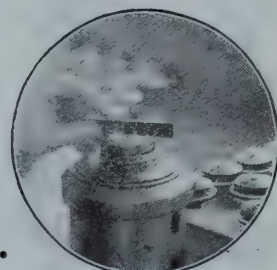
Made in Canada

The DUNHAM
HEATING SERVICE

Every Dunham Trap Is TESTED

Every Dunham Radiator Trap is permanently adjusted at the factory. It never needs attention in service when used within the range of pressure for which it was designed. Dunham Traps are "set by test." Preliminary setting is made with precision tools and gauges to a hair line. Then, **after that**, each individual trap is tested as illustrated to prove that it opens for air and water but closes tight against steam.

There is nothing uncertain, variable or weak about the motive force in a Dunham Radiator Trap. When steam



Setting the disc with hair-line accuracy. This adjustment is permanent.

comes into contact with the thermostatic disc, it closes positively with a pressure of 14 pounds against the steam.

There is a Dunham Trap for every need. Full details of all Dunham Specialties will be found in Special Bulletins, covering each of the Dunham Specialties. Write for the one you wish.

C. A. DUNHAM COMPANY, LIMITED
TORONTO, ONT.

Halifax Vancouver Winnipeg Ottawa Montreal Calgary
London: 233A, Regent Street, W. I.



OPEN VIEW
NO. 10-A

The
CEILING
PLATE

that's
better



TOP-VIEW
NO. 10-A

THE NO. 10-A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES $\frac{3}{4}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



Gem No. 4.



Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

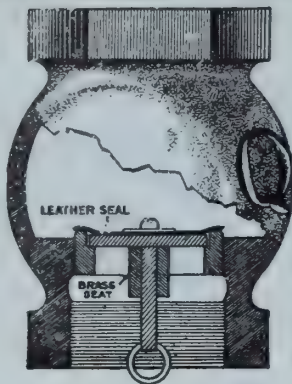
PIPE for GAS SERVICE WHEN BUILDING

It's better—and cheaper—to pipe for complete Gas Service at the time you build, than to wait until later on when you discover that you omitted a connection for the bedroom or the bathroom, etc. We'll be glad to send our representative to talk this over with you. He'll suggest many new little things in the way of gas conveniences that will mean much to your happiness later on.

The services of our
"New Building Bureau" are yours.

TELEPHONE ADELAIDE 2180

THE CONSUMERS' GAS CO.
19 Toronto Street, Toronto



This is a
“Q”
 Foot Valve

And it Just **CAN'T** Leak

There are more pump troubles caused by “leaky” valves than from all the wear and tear which occurs in the average life of a pump.

The “Q” valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that **JUST CAN'T LEAK.**

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
 GALT, CANADA

The **Hotstream**
 HEATS IN A HURRY
TRADE MARK REG.
 WATER HEATER

Kerosene Water Heater



Here is a **REAL** Kerosene Water Heater.

Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give **SATISFACTORY SERVICE.**

Once sold — stays sold — no come-backs.

The price is low — the season is here—send for descriptive folder to-day.

The Hotstream Heater Company

“Makers of heaters that heat”

Cleveland, Ohio

(We make a complete line of single and double copper coil, cast-iron coil, and sectional gas water heaters.)

W. H. CUNNINGHAM & CO.,
 269 Richmond St. West, Toronto
 Canadian Representatives



A MONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' “Vulcan” Chain Pipe Vise as his best friend.

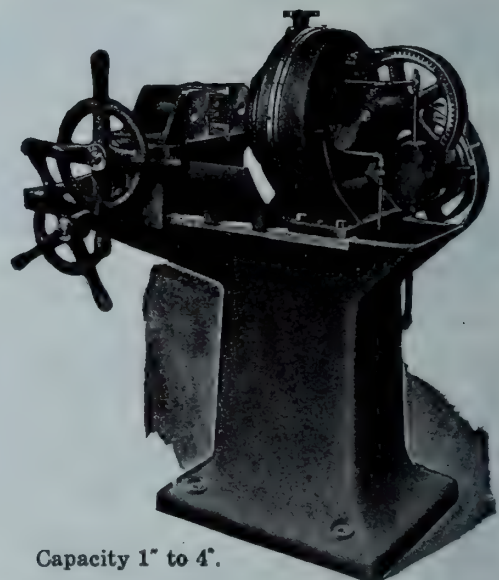
Ask for our “30 vs. 60 lbs.” booklet. It will prove the value of “Vulcan” friendship.

J. H. WILLIAMS & CO.
 LIMITED

“The Drop-Forging People”

Formerly Canadian Division of
THE WHITMAN & BARNES MFG. CO.

17 Tnorold Road, ST. CATHARINES, Ontario



Capacity 1" to 4".

The Hall Simplex Improved No. 4 Pipe Machine

Easily operated by unskilled help. An ideal machine for the plumber, the steamfitter or the jobber. Will thread pipe as short as 4½ inches. Let us mail you full information regarding this money saver together with catalog covering our complete line including:

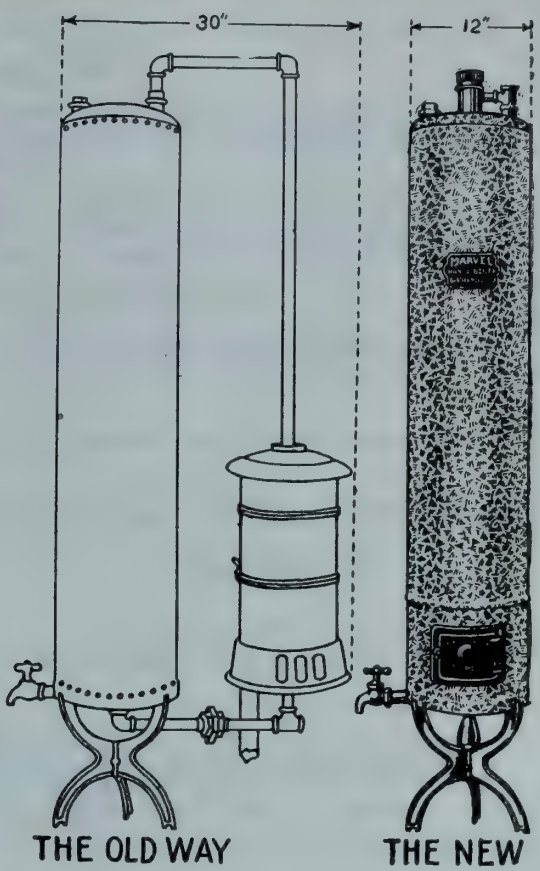
Pipe threading machines ... ½ to 18"
 Nipple machines ½ to 4"
 Roller pipe cutters ½ to 4"

Delivery from stock.

JOHN H. HALL & SONS, LIMITED
 BRANTFORD, CANADA

INDEX TO ADVERTISERS

Allison, K. B.	37
Amherst Foundry Co.....	Inside front cover
Anthes Foundry Co.....	Inside back cover
Atlas Engineering & Machine Co., Ltd....	44
Bastian Morley, Ltd.	47
Beaton & Cadwell	45
Beaton & Corbin	48
Borden Can. Co., Ltd.	39
Canadian John Wood Mfg. Co., Ltd.	3
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Iron Co.	48
Chamberlain Desolve Co.	44
Consumers Gas Co., Ltd.	45
Cunningham & Co., W. H.	9
Dennis Wire & Iron Works Co., Ltd.	6
Dominion Sheet Metal Corp., Ltd.	1
Dunham Company, Limited, C. A.	45
Empire Manufacturing Co..	Outside front cover
Fittings, Ltd.	39
Galt Brass Co.	Back cover
Hall & Sons, Ltd., John H.	46
Hause Mfg. Co., Chas. F.	48
Hoyt Metal Co.	44
Hotstream Heater Company	46
International Malleable Iron Co.	8
Jardine & Co., A. B.	38
Jenkins Bros., Limited	43
Kerr Eng. Co., Ltd.	8
Marks & Co.	48
McDougall & Co., R.	46
McIntyre & Taylor, Ltd.	39
Ministry of Munitions	7
Morrison Brass Mfg. Co., Ltd., Jas.	41
Mueller Mfg. Co.	35
Port Hope Sanitary Mfg. Co.	24-25
St. Louis Technical Institute	44
Standard Sanitary Mfg. Co.	12
Steel & Radiation, Limited	43
Sturtevant Co. of Canada, Ltd., B. F.	5
Toronto Hardware Mfg. Co.	46
Wallaceburg Brass & Iron Mfg. Co., Ltd..	4
Warden-King, Limited	41
Westco Pumps, Ltd.	9
Williams & Co., J. H.	46
Wolverine, Ltd.	39



THE old style side arm combination was as inefficient as candle light. It was awkward, a gas-eater, slow, heated more air than water, and, like the candle, it has given place to the new and better way.



is delivered on the job completely assembled, and, with the addition of a single gas connection, is as quickly and easily installed as an ordinary range boiler.

It heats water quickly, with little gas. Is odorless, silent, safe. Brings back no complaints, avoids adjustment losses.

Made of extra heavy material. In all sizes. Tested to 150 pounds under working pressure, and guaranteed for two years. It's the best non-automatic water heater made. Write direct, or to your jobber, for prices and literature.

Made in Canada
Sold and installed by plumbers exclusively
BASTIAN-MORLEY LIMITED
Makers of Automatic and Non-Automatic Gas Water Heaters
Hanson Street and Hillingdon Avenue
TORONTO, CANADA

C.T.

Wrought Pipe

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{4}$ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal

C.T.

C.T.

C.T.

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

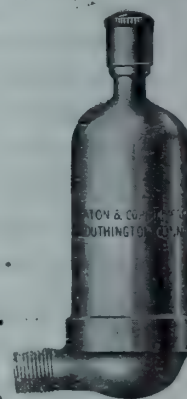
No. 4 B. & C. Automatic Radiator Air Valve Fully Tested

Our Automatic Radiator air valves are fully tested before being shipped to the customers. They are made from the best brass with cast brass base. Screwed and soldered on. Satisfaction is assured when "B. & C." valves are used.

Write for Catalogue

The Beaton & Corbin Mfg. Co.
Southington, Conn.

Stocks carried by our Canadian Representatives
Canadian Representative: W. H. Cunningham & Co.
269 Richmond Street West - Toronto, Ontario



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers

Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.

Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

FOR SALE—PLUMBERS' SUPPLIES OF ALL
makes, at prices that protect the plumber.
American Plumbers' Supplies, 14 Craig St. West.
Montreal.

When Writing to Advertisers
Kindly Mention this Paper

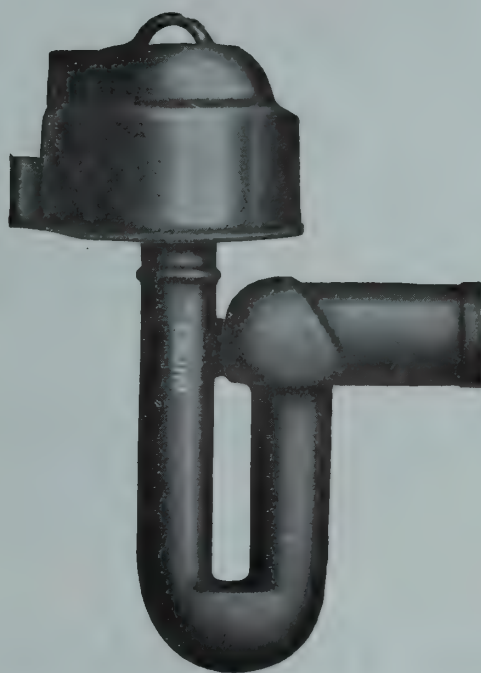
YOU ARE RESPECTFULLY REQUESTED TO SPECIFY
RIVETED RANGE BOILERS
and
CAST IRON SOIL PIPE AND FITTINGS

Manufactured by

TORONTO HARDWARE MFG. CO., LIMITED

Health Depends upon our Intelligent Co-operation with Nature

Science has demonstrated that isolated dwellings can be made just as sanitary as communities.



The "Anthes"
Syphon does for
the farm what
the trunk sewer
does for the city.

*The growing demand for our syphon has
proven its stability.*

ANTHES FOUNDRY, LIMITED

Manufacturers

Cast Iron Soil Pipe and Fittings

JEFFERSON AVENUE
TORONTO

SASKATCHEWAN AVENUE
WINNIPEG

Every
Tank
Thoroughly
Tested



White Oak
and
Mahogany
Combinations

VitrO Profits and VitrO Tanks are Inseparable

THE VitrO Tank has brought lasting satisfaction to thousands of owners and thousands of dollars to Canadian plumbers, because—

The VitrO is a “No Trouble” Tank—made from start to finish, inside and out, to eliminate trouble for the customer and for the plumber.

VitrO is the name of a complete tank—fittings included—not merely the material from which the tank is made.

It is a name that has earned public confidence because it has set a standard for tank buying. It is a name that represents a larger profit to the plumber because a VitrO Tank does not need “fixing.”

In all your jobs, make your aim the satisfaction of the buyer and of yourself, and your choice will be, invariably, the VitrO “No Trouble” Tank.

Made exclusively in Canada by

Galt Brass Company, Limited

GALT

CANADA

VITRO NO TROUBLE TANKS

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XV.

PUBLICATION OFFICE, TORONTO, FEBRUARY 15, 1921

No. 4



A-237

EMPIRE

Quick-Opening Faucets

THESE quick-opening "Kitchener"-style packless faucets are made of high-grade metal and finely finished throughout. No. 238 with its short shank is better suited to laundry tubs and slop sinks as it does not protrude out in the way.

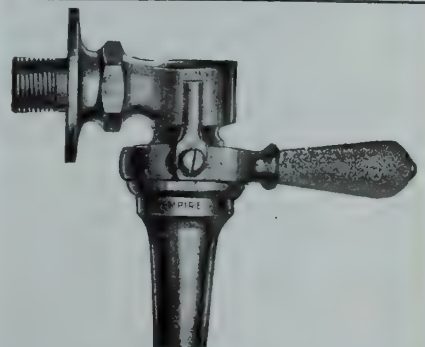
The durability and ease with which the spouts can be removed and the seats renewed has made A-237 and A-238 the plumber's favorites through Canada for this high-class work.

All kinds of EMPIRE sanitary fixtures and plumbing supplies are carried in stock by leading Canadian jobbers. Write us your needs.

"If it's an EMPIRE product you know it's right"

Empire Brass Mfg. Co.
LIMITED

LONDON and TORONTO
CANADA



A-238

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, Nova Scotia

AGENCIES :

ONTARIO :

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST :

E. B. Flewes, 120 Lombard St., Winnipeg

WISE ECONOMY!

DIRECT SHIPMENTS GALVANIZED SHEETS

We carry in stock 2,000 tons

Premier Galvanized Sheets

All Standard Sizes in Gauges Nos. 14 to 30

We ship direct at no extra cost, saving
freight, damage and time.

Jobbers who use our service are saving
money and making money.

SO ARE MANUFACTURERS!

DOMINION SHEET METAL CORPORATION, LTD.
HAMILTON, CANADA



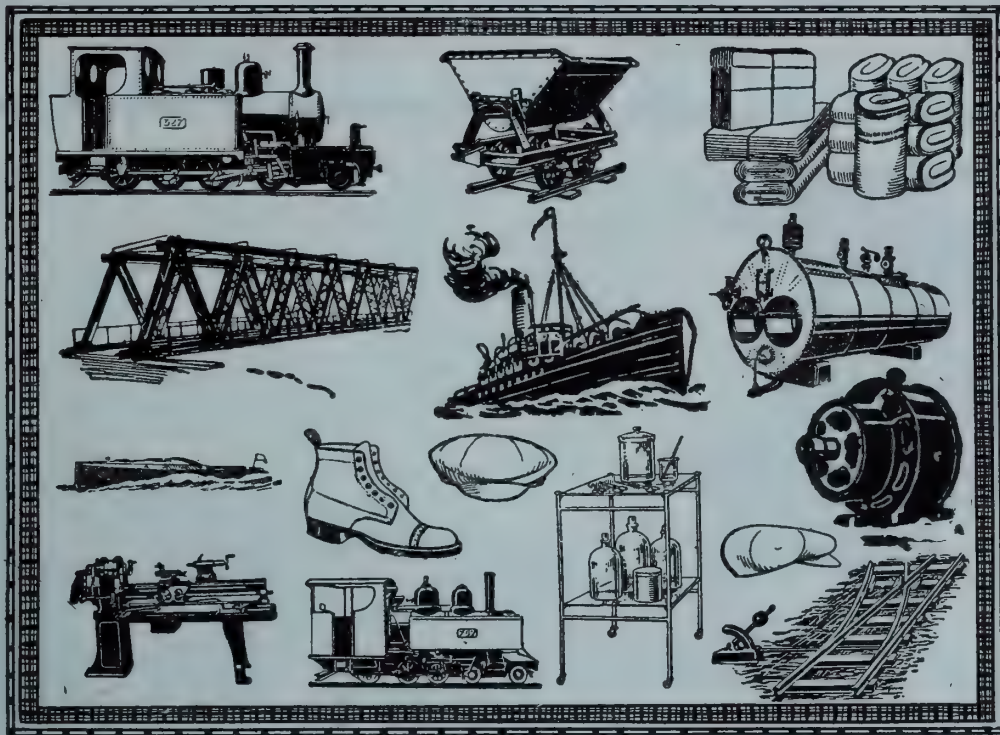
"MOTTO"

A Little
"Straight Talk"
to the Canadian
Plumbing Trade

Price cutting is not competition, it's brainless, blind suicide eventually and always murder of sound business results. Let the other fellow be the suicide and murderer.

CANADIAN BRASS COMPANY, LIMITED
GALT TORONTO

MINISTRY of G R MUNITIONS



THE DISPOSAL BOARD HAVE

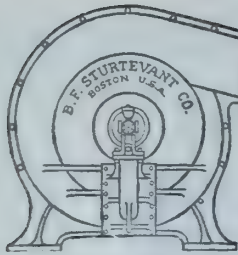
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AND
AVAILABLE FOR EXPORT
OF
ENGINEERING STORES

Ferrous and Non-Ferrous Metals	Medical Stores
Plant and Machinery	Chemicals and Explosives
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Factory Stores	Agricultural Machinery
Machine Tools	Aircraft
Railway Material	Furniture
Electrical Instruments and Machinery	Textiles and Clothing
	Motor Boats, etc., etc.
	Boots and Leather Equipment

Buyers should instruct their representatives in the United Kingdom to communicate with the Secretary, Disposal Board, Ministry of Munitions, Caxton House, Tothill Street, London, S.W. 1.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."



Sturtevant

REG. U.S. PAT. OFF.

PUTS AIR TO WORK



WIDENER MEMORIAL LIBRARY, HARVARD UNIVERSITY, CAMBRIDGE, MASS. HORACE TRUMBAUER, ARCHITECT
EQUIPPED WITH STURTEVANT HEATING AND VENTILATING APPARATUS

FOR sixty years we have been active in developing the science and mechanics of heating and ventilating. Many of the most important buildings of the country are to-day supplied with efficient service through their Sturtevant equipment. Our experience during this long period is your guarantee of satisfactory results.

B. F. STURTEVANT CO., OF CANADA, LTD.

MAIN OFFICE AND WORKS: GALT, ONTARIO

SALES OFFICES: TORONTO AND MONTREAL



The SPENCER SELF-FEED BOILER



WHY A SPENCER?

SOME of the REASONS—

1st.—Every Owner of a Spencer Self-Feeding Boiler saves from THREE to FIVE Dollars on every ton of coal required to heat his premises, and is DELIGHTED with the constant service he receives from the Boiler with so little attention.

2nd.—This small-sized No. 1 buckwheat coal, which the Spencer burns successfully, is always available. The only other known types of boilers that will burn it are the mechanically-equipped boilers, and many factories are now equipping their boilers to burn coal in a powdered condition. Of course the Spencer will successfully burn fuel in the larger sizes.

3rd.—The magazine of the Spencer holds a 24-hour supply of fuel. The fuel feeds at a tempered condition in thin fires over the arched grates in exact proportion as the fuel is consumed, thus eliminating waste and allowing perfect control of firing conditions.

4th.—Spencer Boilers are known to maintain temperatures for a period of 48 hours in the coldest weather without attention.



HOUSE SIZE

THOUSANDS of Spencer Boilers are now in operation in various parts of Canada and the United States. We can refer you to almost every known type of building where Spencers are successfully operating. We manufacture in Canada the Spencer Cast Iron Sectional type of Boilers in ten different sizes ranging in capacity from 600 square feet to 3,600 square feet, and the Spencer for steam is of fire and water-tube steel construction, ranging in capacity from 1,000 to 10,000 square feet, there being twenty sizes.

Let us co-operate with you on the sales in your district. There is a SPENCER for every heating requirement.

Give us your address—NOW.

Spencer Heater Company of Canada, Limited

68 Adelaide Street East, Toronto, Ont.

WINNIPEG, MAN.
185 Portage Ave. East

PLANT
Penetang, Ont.

MONTREAL, QUE.
71 St. James Street

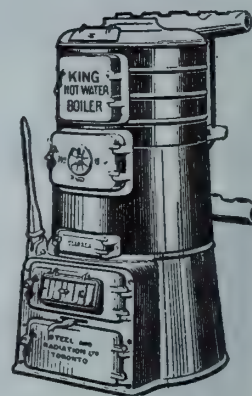
Safeguard Your Reputation

Install the Best

Your customer must be satisfied if your business is to grow. Heating system costs money now and you should be careful to install only King Boilers and Imperial Radiators—The system that satisfies.



KING HOT WATER ***BOILERS*** ***AND*** ***IMPERIAL RADIATORS***



Don't be tempted to substitute inferior boilers for the sake of a few dollars—you'll lose in the end. The low consumption of coal, together with the ability to heat every corner in every room, has made the King Boiler a general favorite. Recommend this perfect heating system to your customers.

STEEL and RADIATION, Limited

Head Office: 80 Adelaide St. E., Toronto

Sales Offices: Montreal, Toronto, Quebec

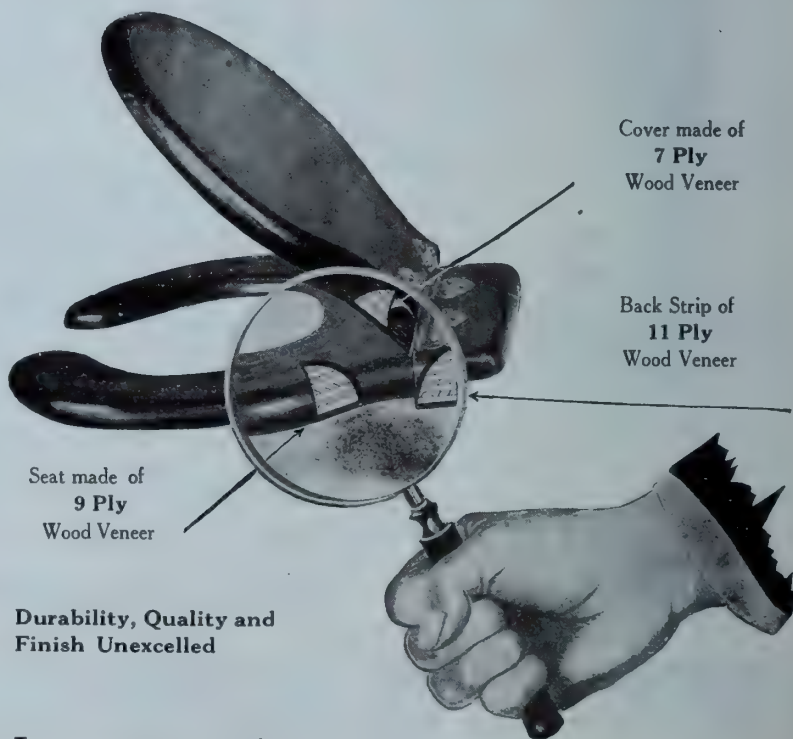
A complete stock of all lines is carried at our Montreal warehouse.
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg
Carroll Wilson, Ltd., Edmonton
T. L. Peck Co., Vancouver

The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

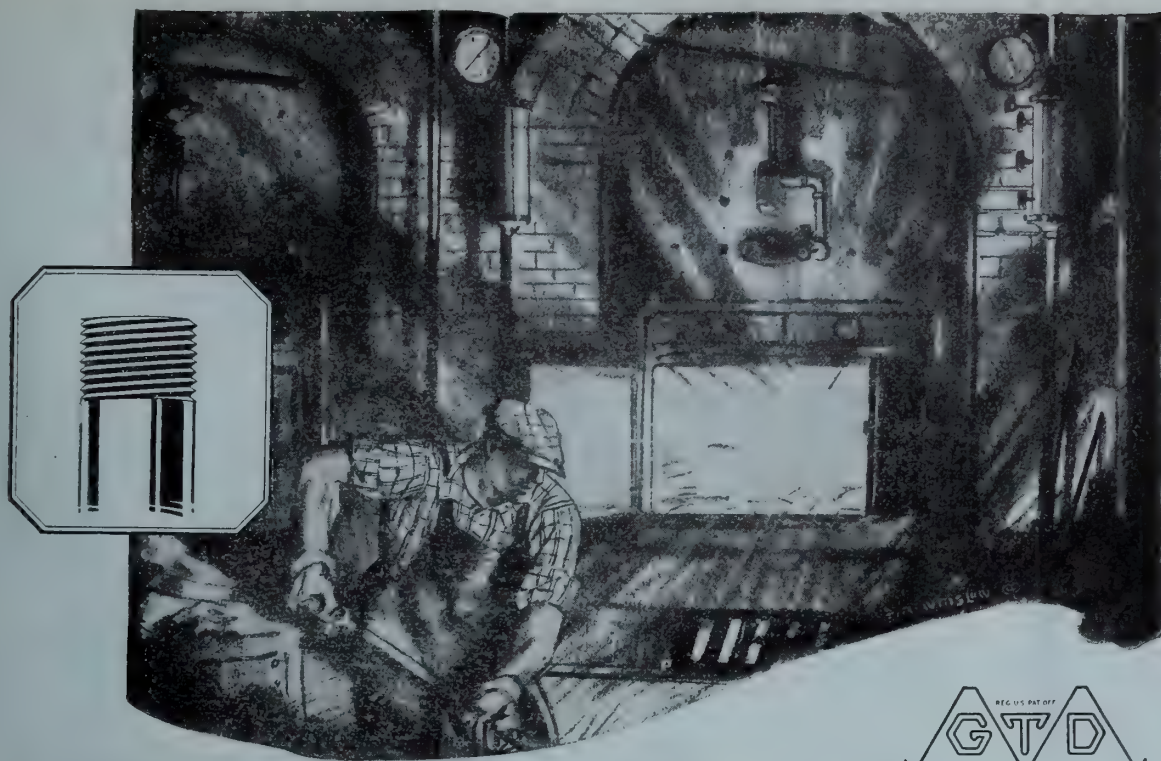
Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.



Durability, Quality and
Finish Unexcelled

CANADIAN VENEERING CO., Inc.
ACTON VALE - QUE., CANADA

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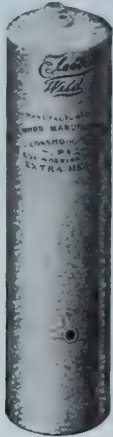
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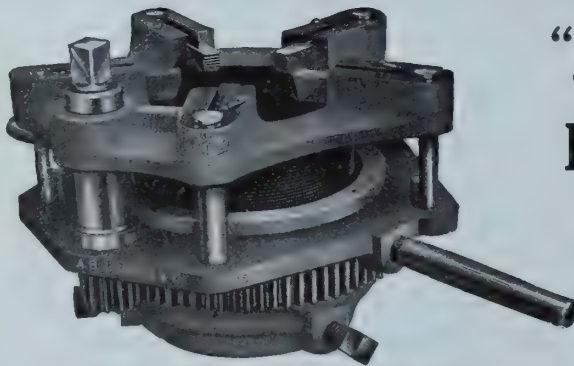
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"MADE IN CANADA"

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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CONTENTS

Changed Attitude Re Tinsmiths.....	13
Plumbers Should Share This Tax.....	14
Combination Heating System.....	15
Questions and Answers.....	16
Practical Sheet Metal Work.....	17
Heating Contractors' Uniform Contract	18-19
Editorial Comment.....	20
Ways of Making Show Window Attractive.....	21
New Canadian Patents.....	22
Sewage Disposal For Small Communities.....	23
News From Here and There.....	26
Current Market Quotations.....	30-36

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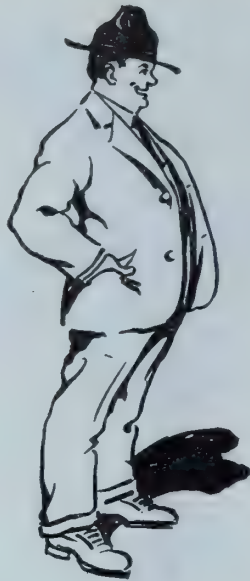
THE CANADA METAL COMPANY, LIMITED

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By Booster Biny

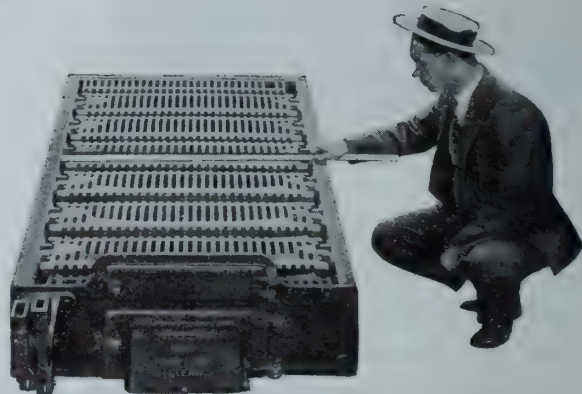
THE reason I ask this particular question is because you have a funny way of looking every time I give you a rating on any of our boilers.

As near as I can figure out, you seem to think that we rate them on what the other fellow's boiler is **rated to do**, rather than on what our boilers have **actually done**.

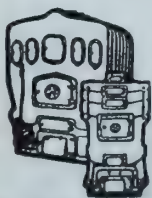
If what you intimate as so, really was so, then I am sure that room won't be air cooled. In fact all the drafts in the furnace will be on.

But, knowing as I do know, that when we say our boilers are rated to do a certain thing, they are rated to do it. Rated to do it because they have done it and are doing it. Which fact being so, it looks as if after all the drafts would be turned off and all the electric fans would be running in that room.

Do You Think There Is Going To Be a Special Air Cooled Room For Boiler Makers In Heaven?



When you figure a Burnham's grate surface you figure how much actual surface there is on the grate, not how wide the ash pit is from the outside. Which is exactly the way we measure it.



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A Changed Attitude re Tinsmiths

In Face of the Imminence of a Test Case Government Officials Now Inclined to Class Tinsmiths as Contractors, the Latter Categorized as Retailers—Have Turned Back Some Applications for Manufacturers' Licenses—What of Passenger Automobiles Converted Into Trucks?

THOUGH the test case to be instituted by the retail merchants to establish the liability for taxation of the merchant operating a tinshop has not yet been heard, there is evident a more sympathetic attitude on the part of Government officials toward the retailers in this and other points of contention.

Until now the stand has been taken by representatives of the Inland Revenue Department that those merchants operating tinshops, and tinsmiths themselves, are for the purposes of taxation classed as manufacturers if they make anything from a tin cup to an eavestrough. The point was protested by those merchants and the trade press but the Government stood fast. Deputy Minister of Inland Revenue Taylor was quoted as having stated to the Retail Merchants' Association that no prosecutions would be made of merchants operating tinshops who failed to take out manufacturers' licenses and collect sales tax, pending the outcome of the test case; but nevertheless the ruling given distinctly provided that such merchants were manufacturers and liable as such. And though some merchants may have decided to take a chance awaiting the results of the test case, no doubt the majority hastened to take out manufacturers' licenses.

Definitely Classified as Manufacturers

It was just recently that a ruling was forthcoming that blacksmiths were to be regarded as retailers for the purpose of taxation, but the tinsmith was again distinctly classified as a manufacturer. As a matter of fact, following is the official advice from Ottawa dealing with this matter:—

"Memo 36B to Collectors of Inland Revenue, dated January 19th, 1921:—

"Sir:—You are informed that bona fide blacksmiths are classed as retailers and as such they will not be required to obtain sales tax license nor will they be held responsible for the collection of sales tax.

"Tinsmiths are held to be manufacturers. They must, therefore, operate under a sales tax license and collect sales tax upon sales of their finished product."

The Soft Pedal

But now comes the soft pedal.

Putting the matter squarely up to the Government officials, as to the difference between a blacksmith and a tinsmith, and as to why either should ever have been classed as manufacturers, it was stated to Sanitary Engineer by two of the head officials of the Toronto branch of the Inland Revenue Department that the question of liability of tinsmiths as manufacturers was to be largely determined by the extent of the manufacturing done. Meanwhile a new category is being found for tinsmiths under the heading of "contractors," which it happens, are classed as retailers.

Deal Direct With Consumer

"Tinsmiths as a rule who merely make a few stove or furnace pipes, eavestrough, etc., are really dealing direct with the consumer and make the majority of these lines for jobs which have been contracted for," was the admission of one of these officials who agreed that under the circumstances such tinsmiths should be eliminated from the category of manufacturers.

It was further stated to Sanitary Engineer that some recent applications for manufacturers' licenses on the part of this trade had been turned back on this basis.

Confirmation of this stand was secured when a letter to Sanitary Engineer from a merchant in Fort William, Ont., asking if the operation of a tinshop in which stove pipes are made, repair work conducted, and occasional pans and cans are manufactured to order, would make him liable as a manufacturer and liable to collect sales tax on such articles. It was advised by the Toronto official that this merchant would not be classed as a manufacturer if the percentage of manufacturing to retail business was not too great, thus indicating that he was only manufacturing articles for his own use on jobs contracted for. No definite percentages are laid down but this is left for decision by the nearest collector of Inland Revenue.

This action of the Government in altering the policy so as to interpret the spirit rather than the

Continued on next page

All Plumbers Should Share This Tax

Calgary Plumbers Ask Licenses For All Operators—Only Few Plumbers Are Paying Business Tax

CALGARY, Alta.—Demanding that all persons doing any plumbing and heating work "pay their share of this tax"—the business tax—the Calgary Association of Sanitary and Heating Engineers has submitted a letter to the council.

Among other things the letter says:

"In view of the fact that you have found it necessary to increase the business tax, we wish to point out that there are only a limited number of the plumbing and heating contractors within the city who have been paying this assessment and we would suggest that the needed revenue be procured by requiring all parties doing this class of work to pay their share of this tax.

"We would further draw your attention to another unfair condition, viz., the existing plumbing by-law allows any

person or firm from outside the city to take a contract within the city limits, and by employing a journeyman plumber, holding a license for which he pays \$1, complies with all requirements and is, regardless of the amount of contract, enabled to depart after completing the work, and does not pay any business tax.

"This condition creates a hardship on the parties who maintain a bona fide plumbing and heating establishment, which is at the service of the public, and from whom you require both license and a business tax. On Nov. 19, 1920, a letter together with a copy of a proposed change in the by-law, which we think could overcome this difficulty and give the public far greater protection, was sent to your honorable body, but at the present writing no acknowledgment has been received."

Doings Among Montreal Plumbers

FIRST ANNUAL COMPETITION FOR SILVER TROPHY

Montreal.—Montreal plumbers recently engaged in their first annual competition for the trophy which has been presented to the plumbers of Montreal and vicinity by the Good Manufacturing Company.

The trophy is a handsomely mounted cup, with appropriate shields to carry the names of the winners of each year. It will be played for during three consecutive years, and will be kept in trust by the Master Plumbers' Association until the third year's contest has been decided. Four rinks took part in the last match, and after two closely contested rounds, Skip Jas. Griffin laid claim to the cup for the current year, defeating J. Ballantyne in the final by five up. Rinks were as follows:

First Round

F. Latourelle	J. W. Teskey
J. M. Bethune	W. J. Bethune
R. Darling	J. A. Gordon
J. Ballantyne, sk. 14.	Jas. Buchan, sk. 6
G. Delaney	J. Belisle
W. Hughes	Thos. Bain
J. Watson	M. J. Quigley
J. Griffin, sk. 10.	D. A. Bethune, sk. 8

Final

J. Griffin, sk. 12.	J. Ballantyne, sk. 7
---------------------	----------------------

THOS. ROBERTSON CO. OPEN NEW SHOWROOM

Montreal.—Thos. Robertson & Co., Ltd., 134 Craig St. West, have recently opened their new sample and show room.

A CHANGED ATTITUDE

(Continued from page 13)

letter of the Act will be appreciated by tinsmiths even though the move is belated. As far as refund is concerned, Mr. Taylor, Deputy Minister of Inland Revenue, has been quoted as stating that refund of the license fee and of the tax collected would be made if the point was not upheld.

Autos for Commercial Use

Dealing with applications for refund of excise tax paid upon autos in consequence of their having been converted into commercial vehicles a Governmental communication has the following to say: "It will be necessary that the usual documents in support of the claim be supplemented by a sworn declaration from the purchaser of the converted vehicle stating that said car will not be re-converted for passenger use and that the commercial body will not be removed from the chassis. Application for refund must be submitted on form C-15 supported by documentary proofs.

WATER DISTRIBUTION IN SASKATCHEWAN

Moose Jaw.—The Saskatchewan Water Supply Commission has recommended taking some 12,000,000 gallons per day from the river near Riverhurst, filtering it and pumping it to a reservoir near Gilroy, thence distributing it through pipe lines running through Gilroy, Lawson, Eyebrow, Brownlee, Keeler, Marquis, Tuxford and Belbeck to Moose Jaw. A branch line from Moose Jaw will run straight east to Regina, from which branches may be put in to Belle Plaine, Pense, Grand Coulee, Eastview, Stony Beach, Keystone, etc., and provision is made whereby the distribution system may be further expanded to take in towns on the Soo Line as far east as Yellow Grass, and to sections of the farming districts which are in need of water and desire it.

Reservoirs to store 100,000,000 gallons in all will be located at Gilroy, Eyebrow, Belbeck and at King's Reservoir, near Regina's present sources of supply from Boggy Creek.

The chairman of the Saskatchewan Water Supply Commission has announced in his report to the provincial government that in the proposed district each of the cities and railways have about sufficient supplies for their present needs, but will want more if any expansion takes place. Moreover, the railways and all industrial plants would find it a great advantage and saving if the water of better quality from the river were available. Many of the towns are very anxious to have their water problems solved and large sections of the farming community are in great need of water and are prepared to spend large amounts to secure a permanent supply of good water.

OBITUARY

Montreal.—Announcement is made of the death of Ernest Prudhomme, son of A. Prudhomme, president A. Prudhomme & Fils, Ltd., Montreal, jobbers of hardware and plumbers' supplies.

Although only 21 years of age, Mr. Prudhomme, at time of death, was a director of the firm, taking an active part in all business transactions. He joined with his father 5 years ago, having previously studied at Mount St. Louis, Montreal.

Mr. Prudhomme was married last September, and is survived by his young wife. Remains were interred last Tuesday, February 8th.

PERSONAL

Montreal.—A. Valiquette is calling on the plumbing and retail trade of Montreal for the Canada Metal Co., Ltd. Mr. Valiquette has previously held an important inside position in the Montreal branch.

Heating and Ventilating

Combination Heating Systems

Third article of an important series written exclusively for Sanitary Engineer by
N. A. Kearns

Continued from last issue

The Location of the Furnace

The size of the furnace required has been decided. It now remains for us to fix the most suitable position for this furnace.

Warm air furnaces are, as a rule, placed as nearly as may be possible in a position corresponding to the centre of the plan. In some cases furnaces are placed off-centre, so that the pipes leading to the rooms with the greatest exposures may have the shortest runs.

Before deciding upon the exact location for the furnace we must decide where the warm air registers are to be placed. Further on in this article we shall take up the location of the registers; but for the time being we shall consider that we have already decided where the registers are situated and will go on with our method of determining the location of the furnace.

In setting the furnace we should bear in mind that uniform heating depends not so much on the actual size of pipes as it does on their relative sizes. The best results are not obtained by using

the same size of pipes for the same size of rooms, but, rather, by proportioning the pipes and registers with regard to the exposures of the rooms and to the length of the pipes. The registers with north or west exposures should, if possible, be a little closer to the furnace than are those which are toward the east or south.

After we have decided upon the positions for stacks and registers we decide upon the exact location for the furnace. All other things being equal, the furnace should be set so that there will be an almost equal length of run in the pipes leading to the furthestmost stacks.

The centre of the plan of the stacks is not the centre of the plan of the basement. Therefore we must decide to place the furnace toward the rear of the building.

The furnace cannot be set at an equal distance from all of the stacks, nor can it be set in the best position. A brick pier stands in the way. There remains a choice of two locations: one to the east and one to the west of the brick

pier. Now, because it is considered to be good practice to set the furnace toward the exposed part of the building we shall place the furnace to the west side of the pier.

The dotted lines indicate the first and approximate location of the furnace; the full lines indicate the final and exact location.

The Registers

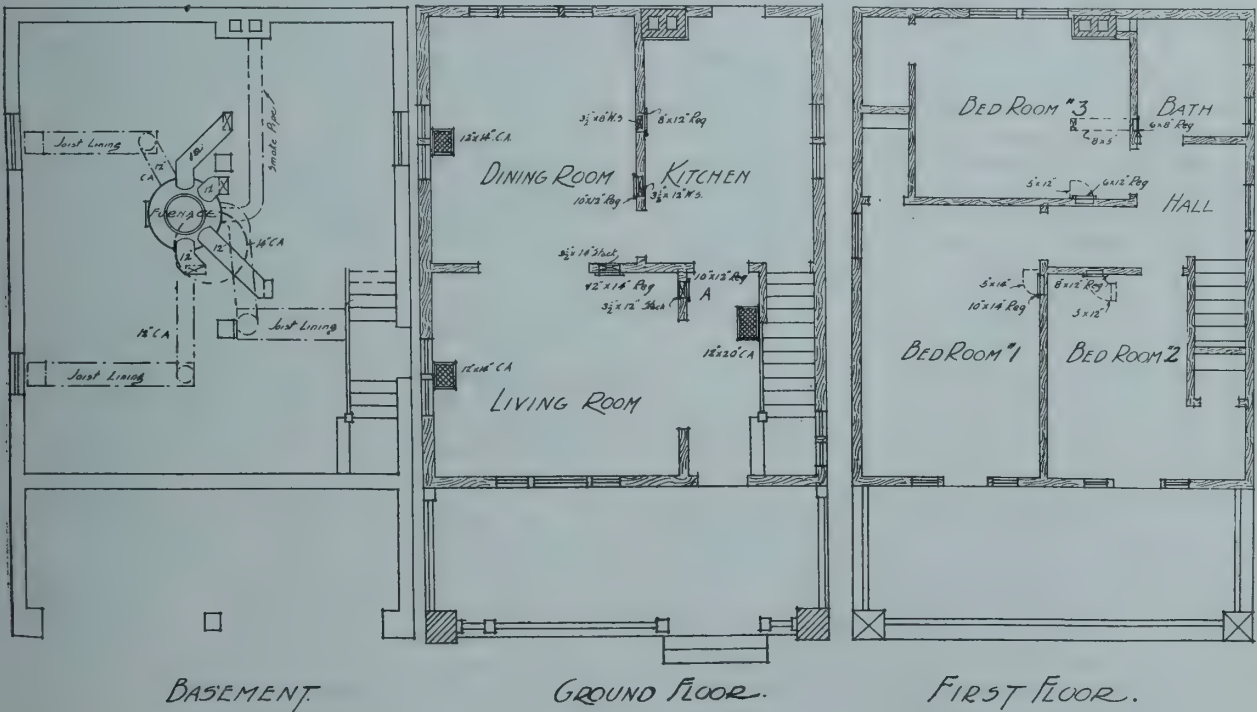
The hall register is the first one for our consideration.

Hall registers are often placed in the floor, but because register boxes, when placed thus, frequently become receptacles for sweepings, we shall not make use of floor registers when we may avoid doing so.

We find that a register may be placed at point "A," and as this position is close to the furnace we decide to place a register there.

In deciding on the proposed locations for the ground floor registers we must consider the requirements for the upper floors.

The upper floor registers are in this case to be supplied with warm air by way of wall stacks. Very often it may be found that the wall stacks can be



conveniently connected to the pipes feeding the registers on the ground floor. In fact, it is much better to arrange the work in this way than in that way when two registers on the same floor are fed from the one stack or pipe.

The register in bedroom No. 2 may be fed by the pipe which connects to the hall register. In a like manner bedroom No. 1 has a common pipe with the living room; the kitchen with the bathroom, and the dining room with bedroom No. 3.

A Double Header

A few dollars might be saved by connecting a single stack to the registers in bedrooms Nos. 1 and 2. In such a case the registers would be set back to back. The dampers or vanes of both registers could not be thrown open to their full capacities at the same time. Furthermore, if both registers should be open at the same time there would be a certainty that the stack would deliver an excess of air to the room on the lee side of the building and at the expense of the room on the windward side.

Although this practice of connecting a wall stack to registers on the opposite sides of a partition is a common one, it is, nevertheless, incorrect. It should not be resorted to unless the wall stack is made unusually large and is fitted with division plates.

Pipe Sizes

The warm air pipes in the basement are generally referred to as "leaders."

The location and length of a leader must be considered by the engineer when he is deciding upon its required area.

The pipes leading to registers on the first floor should be a little smaller than those leading to ground floor registers.

The wall stacks should be placed as near to the furnace as may be practicable. The registers should be set close to the stacks and not placed near windows, nor close to an open fireplace.

A pipe leading to a register on the first floor may be three-quarters the area of a pipe leading to a similar room on the ground floor. A pipe leading to a register on the second floor may be one-half of the area of a pipe leading to a like room on the ground floor.

All offsets in piping must be considered, and the pipe sizes must be increased to make up for the friction occasioned by such offsets.

Rule of Areas

It is possible to make scientific rules based on the known behaviour of air in a gravity system of heating. But the description of how these rules are made would take up more space than we have now at our disposal. In addition to this reason for the omission of such rules from this article there is the greater reason that such rules are hard to remember, and serve no better purpose

than the rule that we are now about to present.

This rule provides for the heat loss that may arise through special requirements of ventilation, or any other heat loss in addition to that occasioned by the more common one of exposures, etc. The rule is:—

To find the required area of a leader in inches: Divide the heat loss by 150.

Another rule which, in many cases, will give a similar result is that where the cubic content is divided by 100, the wall by 10, and the glass area by 1. These divisions should be made in feet. The answer will be the required area in square inches.

An Example

As an example of this method of determining the required area of leader pipes we shall use it in deciding upon the required pipe area for the leader feeding the living room and bedroom No. 1.

Referring back to the first article of this series we find that the heat loss from the living room is equal to 13,120 B.t.u. per hour.

Dividing the heat loss by the factor of 150 gives a figure of 88 square

inches for the required area of the pipe feeding the living room register.

If we use the rule of 100, 10 and 1 we find that the required area is 90 square inches.

The heat loss from bedroom No. 1 is 9,300 B.t.u. per hour. If these figures are divided by 150 the result is 60 square inches. If the other rule is used we find that 55 square inches appear to be enough. But because this room is on the first floor we need only supply an area of 75 per cent. of either of these figures. We shall, therefore, consider that the area of pipe required for this register is 41 square inches.

Adding the figure of 41 to that of 88 shows us that a total area of 129 inches is required.

One area of a 12-inch pipe is only 113 square inches; of a 14-inch pipe it is 153 square inches. This leader has a very short run, so we decide to use the 12-inch pipe.

Areas of Registers

The effective area of a register is only two-thirds of its actual area; about one-third must be deducted because of the grills.

(To be continued)

QUESTIONS AND ANSWERS

Question.—We have a ninety-gallon range boiler tied up to a McClary hotel range and it does not heat. We would like to have your opinion on it. It has a straight water front and tied up with one-inch pipe from the boiler and the lower pipe is straight in from the lower connection, which takes about eighteen inches in all. The water will get warm after fire is made four or five hours but it will not get hot. The water is just about right for bathing without adding any cold water to it. All pipe and connections from front to boiler are a full inch and connections from top of boiler are three-quarters of an inch. Can you give us any cause why it will not heat as we have done all we can? We have even tried to heat the boiler by taking a hot line from the top with three-quarter pipe and plugging off the side but that made it worse.

BAILEY & KAULBACH BROS.,
Bridgewater, N.S.

Answer.—It would appear from the description you give of your difficulties in securing an adequate supply of hot water that the water front in the range is too small for the 90-gallon tank with which it is connected.

In installations of domestic hot-water supply systems the circumstances vary so much that it is rather difficult for anyone to give hard and fast rules that could be used in every case. The quantity of water used and the time required in heating it must be considered. As a general rule a water front with a sur-

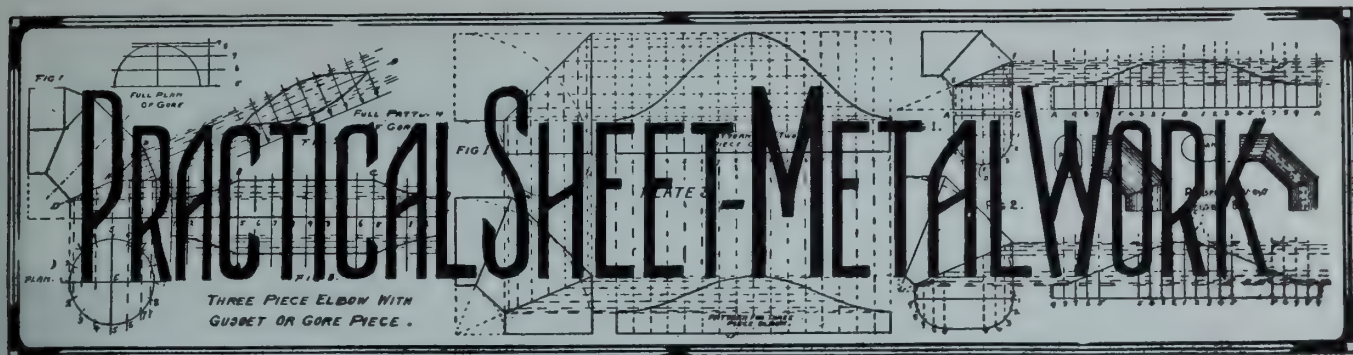
face of 100 inches exposed to the fire will serve for a 40-gallon boiler. For a 90-gallon boiler the heating surface of the water front should be 225 square inches.

We do not think that any of the trouble is due to faulty circulation; however, if you should find that the water front has 225 square inches of external heating surface it might be well to examine the tank to see if the cold water supply pipe is not broken off, and that it runs down within the boiler to a point about three inches above the level of the top of the water front.

* * *

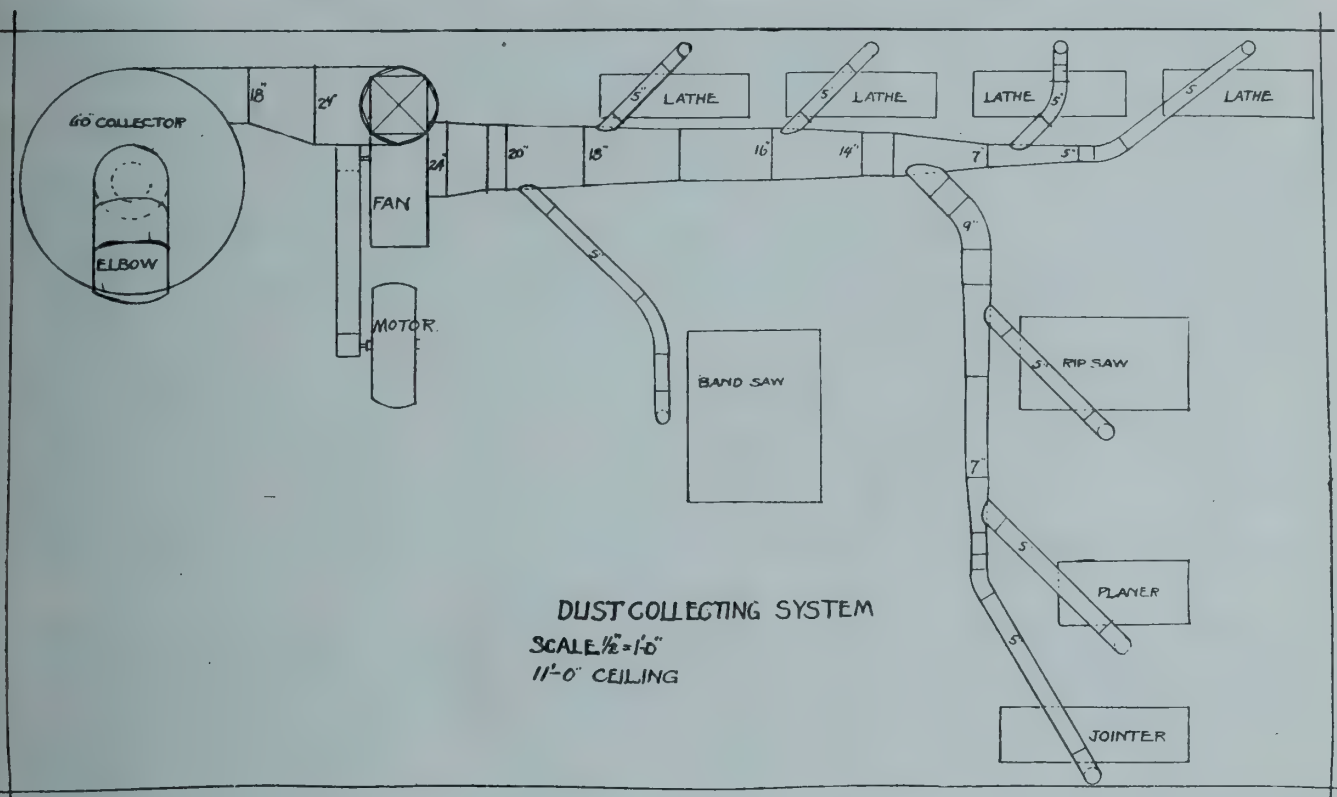
(Question.)—Can you give me the cause and cure for sweating stove pipes. There seems to be a thick syrup-like liquid trickling through joints of pipes and the owner claims he is burning dry wood.—W. Walters, Yorkton, Sask.

(Answer.)—The reason of the leakage of liquid through the joints of the smoke-pipe is that a downward current of cold air is condensing certain vapors which arise from a smoldering wood fire. A downward current of cold air may occur when the fire is checked in a way that will prevent any air entering the fire pot save by way of the chimney; or a downward current of air may come by reason of the flue not being of sufficient height. If your client is using an air-tight stove you should advise him to use an open damper in the smoke-pipe for the purpose of checking the fire.



DUST COLLECTING SYSTEM

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.



DUST COLLECTING SYSTEM
SCALE $\frac{1}{2}'' = 1'-0''$
11'-0" CEILING

BLOW pipe jobs are becoming more numerous every year. Each factory requires a design of system all its own. This requires considerable originality, although it is merely piping.

The man who must install these systems must be an able workman who understands design as well as erecting.

Then on all these jobs there are always numerous patterns to lay out that are of interest.

In this case we have fan run by motor. The fan has a 24" opening and is of ample size for the machines. The larger fan is no doubt selected to enable enlarging the system, by setting in other machines.

It is always better to have a fan larger than required as a small fan must be crowded and this is not good practice.

A larger fan is geared down, thus running smoother with less speed and handles the work more positively.

To determine the volume and velocity of air which a fan exhausts is done by means of a meter to measure the number of revolutions of fan per minute. Then the diameter of fan wheel and width and depth and number of blades are figured. This is not an easy problem for the layman mechanic.

So the best way to know the volume and velocity is to find the number of revolutions the fan makes per minute.

Then take the manufacturer's catalogue that made this fan and look up tables. Find the number of fan, or diameter of wheel, etc., and check table with revolution per minute and you have your data.

A few tests this way will soon acquaint the workman with speeds, volume and velocity.

The designing of the pipes is more of a matter of making the pipes of a size to carry the substance. Too large a pipe is not good as too great a waste in power is produced.

Most machines according to size are piped with 4" to 7" pipes. In this case we have 5" pipes. Each branch pipe causes an enlargement of the main suction line.

In this way the main suction line is made large enough to accommodate the full area of the branch pipes. Just where and how these branch pipes must run into the main line is governed by the settings of the machines.

But the branch pipes should not enter the main at less than a 45 degree angle. All pipes should be riveted every 2½ to 3" apart and the seams skimmed with solder.

Heating Engineers' Uniform Contracting Form

Experience of Many Well-known Men in Heating Industry Reflected in This Uniform Contracting Plan—Eliminate Firm Name From the Form—Conditions Printed on Reverse Side—Standard Form is Most Acceptable

ON the opposite page is found a uniform contract form for heating contracts, as suggested by well-known men in the heating industry. This form carries with it all of the conditions and is recommended as adopted by the Heating and Piping Contractors' National Association. Much credit is due that organization for the major portion of the conditions and terms included in the contract form as shown.

This form is being recommended by the U. S. Trade Extension Bureau, an added recommendation being that overprinting on these contracts be eliminated. The opinion is expressed that the heating contractor will have less difficulty in getting signatures to this contract if his own name or his firm's name is eliminated from the top.

Printed in the form recommended, the heading would indicate that it is a uniform contract form adopted by a national organization and by using a uniform contract of this character the average buyer will take it for granted that all of the conditions printed on the back of the contract are standard conditions and therefore accept them without argument.

Following are the conditions, printed in small type, on the reverse side of the form:

Standard Conditions for Steam, Hot Water and Better Heating Installations

No. 1. Payments are to be made monthly on a basis of 90 per cent. of the value of labor and materials furnished during the preceding thirty days. The remaining 10 per cent. to be paid on completion of the contract.

No. 2. It is expressly stipulated and agreed that the contractor shall not be liable for any delays occasioned by the acts of the elements, strikes, fires, inclemency of the weather, the acts of other contractors, or any other causes beyond his control.

No. 3. The owner or agent shall provide sufficient space on the premises where this contract is to be executed for the storage of the material and the proper prosecution of the work.

No. 4. All material and labor required to complete the work and not included in this proposal shall be furnished by the owner or his agent in such manner as not to delay the progress of the work.

No. 5. Unless otherwise provided for, the contractor shall do all cutting through walls or floors for the installation of this work and finishing around same after work is completed.

No. 6. The contractor will guarantee the installation against original defects of material and workmanship for a period of one year from the date when the heating plant is ready for practical use. The contractor agrees to replace without expense to the owner, except transportation and board for men, any part requiring replacement within the period stated above, due to inherent defects of material and workmanship. Be

it understood that the contractor will not under any condition pay for any labor or material, or any defect other than repaired by his own men. The liability of this matter extends only to the labor and material furnished by the contractor and does not cover any contingent liability either to buildings, contents, products or persons.

No. 7. If the work covered by this proposal includes the installation of material and apparatus under specifications made by others, the performance liability is not assumed by the contractor. Should the contractor guarantee temperatures or operation of this system and tests be required, such tests shall be made by the contractor under standards established by the American Society of Heating and Ventilating Engineers.

No. 8. If upon completion of the work covered by this proposal, weather or other conditions over which the contractor has no control, do not permit of a proper test, this shall not be considered a sufficient reason for withholding payment.

No. 9. This proposal is based on the prevailing rate of wages and the execution of the work during regular working hours.

No. 10. It is hereby expressly provided that the title to the material to be furnished by the contractor under this proposal, shall be and remain in the contractor until all sum or sums of money called for in this proposal, and required to be paid by the owner, are fully paid the contractor in legal tender of the United States; and that until said sums of money are so paid, said material shall be, and by the signing of the acceptance hereof, it is agreed that they shall be and remain personal and moveable property in whatever manner they may be annexed to realty and that in case of default in the payment of any of the instalments provided for in this proposal, the contractor is hereby authorized to enter upon said premises and to take possession of and remove said material at any time and that in such event, the contractor shall have the right to retain as rental for the use of said material, any sum or sums of money that may have been paid by the owner; and that all expenses incurred by the contractor by litigation arising out of and caused by failure to make the payments as herein provided for, shall be paid by the owner.

No. 11. Water supply connection for feeding heating plant, unless especially mentioned in the specifications as a part of the contractor's work, shall be supplied by the owner at his expense.

No. 12. Sewerage or blow-off connections for the heating plant, unless especially mentioned in the specifications as a part of the contractor's work, shall be supplied by the owner at his expense.

No. 13. Service pipes, returns and air lines from central heating mains in street to point where same enter basement will be treated as an extra unless especially mentioned in the specifications as a part of the contractor's work.

No. 14. The owner shall furnish and deliver in furnace room all fuel required to test the apparatus, if such test is required.

No. 15. The signer of the acceptance hereof hereby acknowledges that he or she is the sole owner of the property in which this contract is to be executed, or that he or she has been authorized to sign same for all parties interested in the property; and he or she further declares that the property is and shall remain free from mort-

gages or other encumbrances that can affect the carrying out of the conditions herein set out.

No. 16. Should the owner or his agents, contractors or others acting under them, desire to use any part of the apparatus covered by this proposal prior to the acceptance, permission is hereby granted upon the following conditions:

That the apparatus is to be operated entirely at the owner's risk and expense, and delivered to the contractor again in as good a condition as found. If the apparatus is required for temporary heating, an additional charge will be made for any extra material that may be required or labor required in connecting and disconnecting radiators.

No. 17. The owner shall provide a chimney of proper dimensions and draft for the apparatus proposed herewith.

No. 18. Any dispute arising under a contract based on this proposal that is not settled within thirty (30) days, shall be referred to two arbitrators, one selected by each party to the contract. Should they be unable to agree, they shall select a third arbitrator. The decision of a majority of these arbitrators must be given within sixty (60) days from the date of reference, and shall be binding on both parties to the contract; one-half the cost of arbitration to be paid by each party to the contract.

No. 19. It is further agreed that in case there is an advance or decline in the price of labor by reason of labor conditions covering the territory in which the building is located and which are beyond the control of the contractor, then the amount to be paid under this contract shall be increased or decreased accordingly.

THE ONTARIO PLUMBING REGULATIONS

London, Ont.—The claim that plumbing installations should be inspected and controlled by the municipal department of building inspection instead of by the health authorities was advanced by Chairman Dr. O. I. Cunningham and members of London Board of Health in conference with Dr. F. C. Dallyn, provincial sanitary inspector. The London members contended that modern health authorities agree that sewer gas is only a nuisance and not a disease carrier. The provincial plumbing regulations, which have not been finally approved, are alleged to be beyond the powers of the health authorities. On the ground that they establish a control of the trade of the plumbers to the exclusion of all others, intricate ventilation systems and other requirements, Dr. Cunningham told the provincial officer, needlessly mulct the owner for the benefit of the plumbing contractors. Dr. Dallyn expressed himself as favorably impressed with the London board's contentions, but did not commit himself until the matter was dealt with by the provincial authorities.

.....

EDITORIAL COMMENT

BRIEFS

APPARENTLY the prestige which goes with civic honors is not the business-getting sort for plumbers, judging by the experience of the Mayor of Mimico, Ont., who, because he is mayor of the town, is prevented from taking up a local plumbing contract for school work.

* * *

MUCH talk is heard these days of making the best use of every selling help because salesmanship is more required today than for some years. The plumbing and heating contractor is inclined to think himself outside the range of those to whom this argument is addressed but such is not the case. The windows of the plumbing shop can be made just as attractive and as productive of business as any other trade. There are some good suggestions for trimming the plumbing show window in this issue.

DISTRIBUTE TAX ON PLUMBERS EVENLY

ONCE again comes the cry that only a limited number of plumbers are paying their share of the business tax. This time the protest is made by plumbers of Calgary. Recent increases in the assessment for business tax in most Canadian cities have made an adequate solution of this problem more to be desired than ever before. In the case of Calgary, another phase of this problem which has caused much unrest is the fact that under the existing plumbing by-law of that city any outside contractor can enter into a contract to do certain plumbing or heating work in the city and by employing a journeyman plumber holding a license for which he pays \$1, all the requirements of the by-law are met.

It is quite obvious that this plan would encourage competition from outside the city contractors, and would almost encourage city contractors to move outside the city and still retain their hold on local business in the manner outlined. They would then be free from the necessity of paying a city business tax. This principle is obviously unfair to city contractors. It is the latter operators who are of most value to the city for they help to build it up from a business standpoint and are looked upon as reputable members of the business community. Furthermore they represent the operators who are within easy reach in case of emergency calls, and as such they should certainly not be discriminated against in the manner outlined.

The difficulty could be overcome by a system of

licensing plumbing and heating contractors, without which they could not undertake work within the city limits. In taking out a license to do such work they would be liable to their share of business tax. This would make a more equitable distribution of the burden which now proves irksome in some cases and not adequate in others.

SELL WITH A CONSCIENCE

THE ASSOCIATED Advertising Clubs of the World have handed out some good, sound advice, some of which has previously been published, but is worth repeating at this time. Goods and services, states the Club, no longer sell themselves. They must be sold. Good salesmanship is the order of the day. It is a help-the-buyer kind. It puts Service on a par with Profit. Its aim is to attract buyers by making buying attractive. Merchants and all sellers are not merely getting business, they are building it on foundations of integrity. Just recently the president of a national business spent thousands of dollars to apologize to the public for misstatements in advertising published in hundreds of newspapers by his company. He said policies of truth telling and fair treatment must be maintained by his company at any cost because he valued the confidence of the public and the goodwill of his business too much to have it impaired by wrong practices.

Legitimate business believes in "playing fair" and "dealing square." It aims to safeguard the interests of the purchaser in all transactions. With the spirit of Service as a guiding force, business is worthy of your faith on which its activity relies. There is the hub of the whole matter.

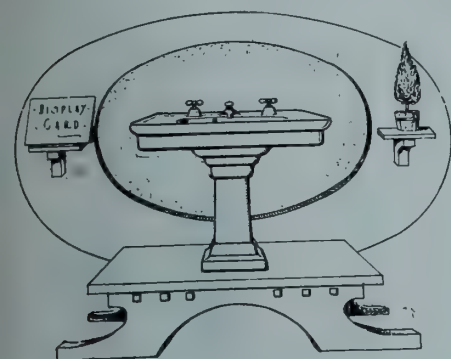
Some say there has been a breaking down of faith by the recent scramble to "get while the getting is good." Even if that is so, we must dismiss from our minds that phase of reaction from war endeavors and declare for new, high standards. To-day, let us start putting our shoulders to the wheel, all together. Let us Work a little more, Think a little harder, Buy without forebodings,—and Sell with a Conscience. We must keep a clear eye out for the other fellow's interests as well as our own.

The one rule that assures a full measure of prosperity is the Golden Rule. It is simple, sure, safe. Work this rule and let it rule your work.

Ways of Making the Show Window Attractive

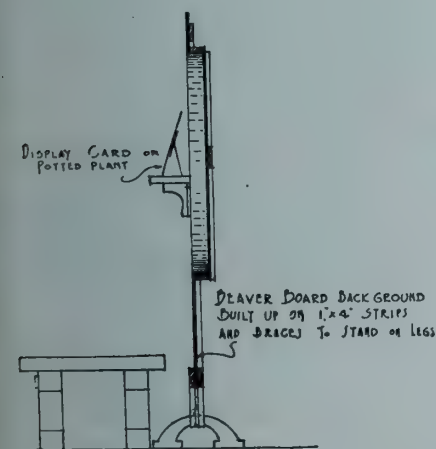
Window Displays of Plumbing and Heating Goods Are Valuable Help—Inexpensive and Effective Decorations Easily Made—Artificial Flowers, etc., Cost Very Little And Are Practically Indestructible—Practical Suggestions Along This Line.

NO matter how small your show window is, and no matter how primitive the arrangements for display are in connection with it, it is still possible to make it really attractive in appearance by means of a very



little effort, and a very small expense.

Understanding, readily enough, that the windows which are in the fronts of many plumbing and heating shops are not built for display purposes; and realizing the need for practical suggestions that will help the contractor to overcome this difficulty, this article offers a number of thoroughly practical



suggestions based on experiences of Trade Extension Bureau men.

The illustrations herewith show detailed drawings for backgrounds of very simple construction that could be readily made by any man who is at all handy with tools. These are especially adaptable to store windows, where there is no bulkhead floor. That is the idea of the pedestal shown in each case in front of the background.

In the case of show windows where there already is a bulkhead floor, that is anywhere from one foot to two feet above the sidewalk level, the pedestal could be omitted if desired, and only the upper part of the background made and used.

In the case of the oval shaped background, shown here with the lavatory displayed in front of it, the face of the background is made of beaver-board or similar material, cut as indicated and supported by light frame work. The central part of this is recessed about three inches. This recessing is accomplished by bending light wooden strips into the shape indicated for a frame.

The beaver-board is decorated by being tinted in an attractive color with the spray from an air brush. It would be easy enough to have your sign painter carry this idea of decoration out as far as you like. But be very careful that the background is not overloaded with decoration. It is merely intended to set off what is displayed in front of it, and not to distract attention from the article displayed.

Using Pedestal

The pedestal in front of the background and the two small shelves shown at each end of it are easily enough made out of any light lumber that is easily worked. Of course, the pedestal should be made substantial enough to support rather heavy weights. The two shelves at each end of the background can be used to support display cards or potted plants as indicated.

The other background shown in the illustration herewith is made in an exactly similar manner, except in the matter of details affecting the shape. In the case of this particular design, however, anything in the nature of a box could be used for the pedestal. When anything of that sort is used, it should, of course, be covered or draped with some sort of soft dark material.

The two illustrations herewith represent only two of the hundreds of ideas of this sort that might be effectively used.

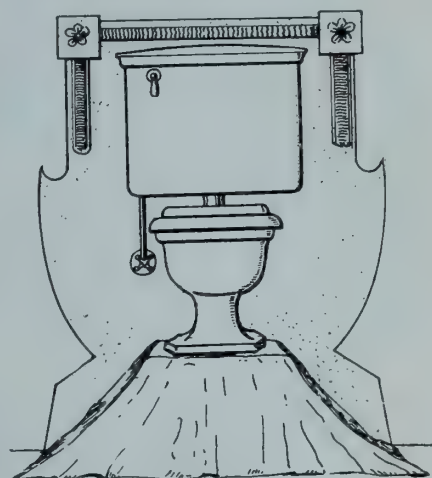
In addition to backgrounds such as are suggested by the foregoing, the plumbing and heating contractor can do a great deal to make his window displays attractive and effective by the use of floral and other decorations, which are easily secured from suppliers of that class of material.

Artificial Flowers

Artificial flowers, vines, etc., when

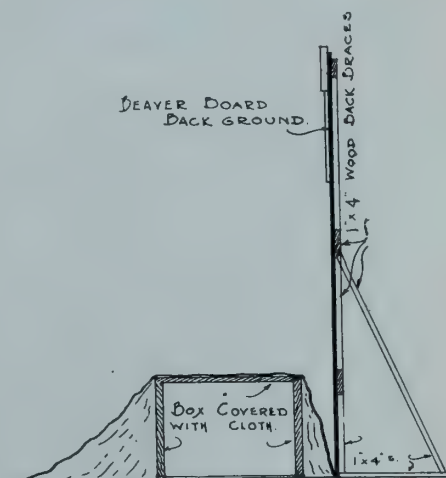
used with judgment and good taste, add immensely to the display value of your show window arrangements.

No matter what your show window arrangements may be, it will pay you to make a couple or more of these mov-



able backgrounds, such as are suggested here. You will then be able to make complete and frequent changes in the appearance of your window that will, in a short while, do a great deal to effectively advertise your business.

A valance or drapery as an ornament for the top of the glass of your show



window is very desirable. You will find an illustration of what is meant by this in connection with the show window suggestions. These things are not at all expensive and can be readily made up to order.

NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

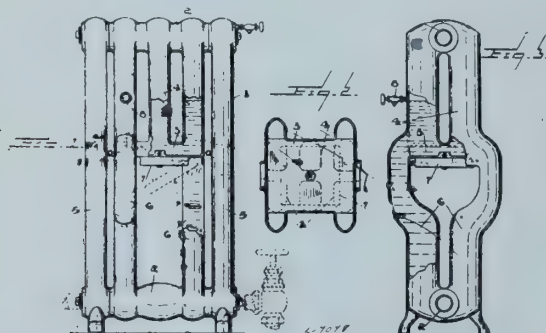
NO. 207,078. RADIATOR

James Bowrey, Toronto, Ontario

A fluid containing radiator comprising a plurality of sections, one of the intermediate sections being of shorter length than the remaining sections and communicating with the adjacent sections on each side thereof, and heating means located against the underside of said short section.

A fluid containing radiator comprising a plurality of sections, one of the intermediate sections being of shorter length than the remaining sections and communicating with the adjacent sections on each side thereof, the communication between the short section and the adjacent sections, and heating means located against the underside of said short section.

A fluid containing radiator constructed as set forth in claim 2 in which the lower portions of the sections adjacent the short section are provided with outward bends at their upper ends to enclose said heating means and communicating at their upper ends with the sides of said chamber.



NO. 207,059. AERATION OF SEWAGE

Oswald Stott, Birmingham, Warwick, and Ernest Reginald Jones, Stourbridge, Worcester, both in England.

In process of purifying sewage and other impure liquids in which the purification is effected by bacterial sludge and air, introducing air to the sewage or liquid and sludge at the surface of such liquid in a tank by artificially circulating the sewage or liquid by mechanical means, substantially as set forth.

In the purification of sewage or other impure liquids in which the purification is effected by bacterial sludge and air, substantially according to the method specified in claim 1, mechanically introducing the air into the sewage or liquid and sludge at or near the surface of the tank, and causing the air to be carried into the lower portion of the liquid body by mechanically circulating the liquid, substantially as herein set forth.

In process of purifying sewage and other impure liquids in which the purification is effected by bacterial sludge and air introduced into it at the surface of the liquid, artificially circulating the sewage or liquid by a plurality of propellers in series extending along the surface of the liquid in the tank for practically the full length of the tank, and causing the liquid and air to pass down to the lower part of the tank

and over the bottom thereof, substantially as set forth.

* * *

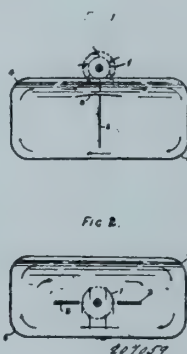
O. 207,356. RADIATOR AIR VALVE

Conrad Feuser, Bloomfield, New Jersey, U. S. A.

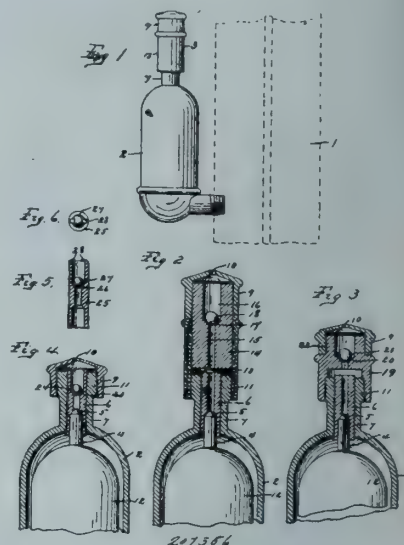
As an article of manufacture, a valve case having a certain counterbored aperture therethrough forming a valve and seat therein, a ball check valve co-operating with said seat, the upper end of said case having an external thread to receive the cap of a radiator and valve, and its lower end being internally threaded to receive the head of said radiator air valve.

As an article of manufacture, a valve case having a central aperture therethrough, said aperture being counterbored to form a valve seat, a ball valve located in the counterbored portion of said aperture for co-operation with said seat, and a screw-threaded cap for said case to retain said ball valve against accidental displacement.

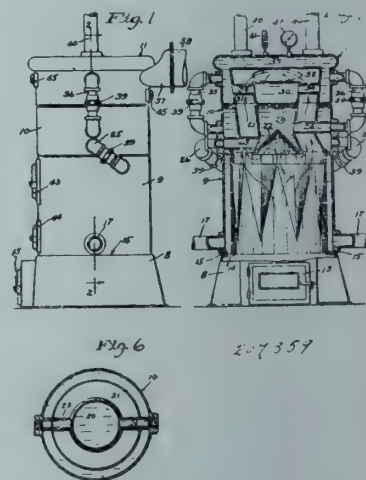
As an article of manufacture, a check



has an outer water chamber, said intermediate and top sections also having central water chambers spaced apart from their outer water chambers to afford a sec-



ondary combustion chamber, water conduits connecting the outer water chamber in the intermediate section to the outer water chambers in the fire pot and top sections, other water conduits connecting the inner water chamber of the intermediate section to the outer water chambers in the fire pot and top sections, and communicating water passageways between the outer and central water chambers in the top sections, said conduits being in the form of union-equipped pipes located outward of the heater and separably connecting the fire pot and intermediate and top sections, and holding the same in assembled relation.



valve case having a counterbored central aperture therethrough forming a valve seat therein, a ball valve resting upon said seat, an apertured cover for retaining said ball valve against displacement, and means for securing said valve case upon the head of a radiator valve for co-operation with the thermostatic valve thereof.

* * *

NO. 207,359. HOT WATER HEATER

John Fleischmann, Minneapolis, Minnesota, U. S. A.

A water heater including fire pot, intermediate and top sections, each of which has an outer water chamber, said intermediate section also having a central water chamber spaced apart from its outer water chamber to afford a secondary combustion chamber, water conduits connecting the outer water chamber in the intermediate section to the water chambers in the fire pot and top sections, and other water conduits connecting the central water chamber of the intermediate section to the water chambers of the fire pot and top sections, said conduits being in the form of union-equipped pipes located outward of the heater and separably connecting the fire pot and intermediate and top sections and holding the same in assembled relation.

A hot water heater including fire pot, intermediate and top sections, each of which

has an outer water chamber, said intermediate and top sections also having central water chambers spaced apart from their outer water chambers to afford a sec-

(Continued on page 36)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

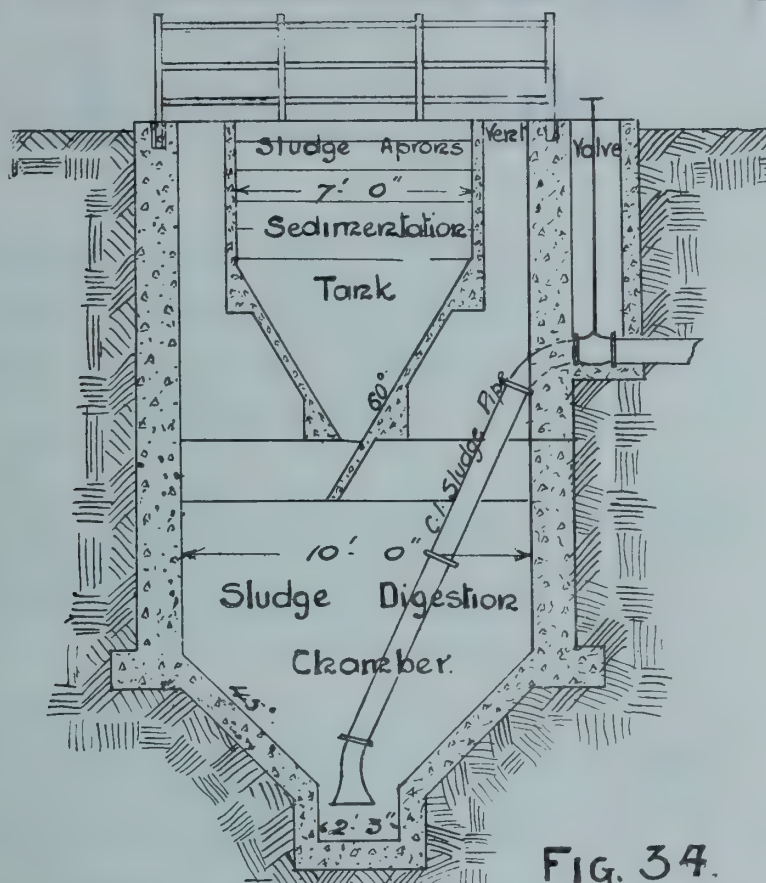


FIG. 34.
Cross Section. Imhoff Tank.

Article No. 26 of the Series—Illustration No. 34

(Continued from last issue)

THE sewage flows over an overflow weir the full length of the tank into a distributor which consists of supply or feeding channels connected to gutters which have holes made along the bottom in which drip points are inserted (Fig. 34). By this system of distribution the tank effluent is evenly spread over the sand filter which is supported by a concrete slab in which conical holes have been made by wedges during the construction of same. This slab is made in sections and is supported by niches in the main walls which are filled with clay so as to prevent leakage, at the same time allowing any section to be removed for gaining access to the tank; the conical holes are filled with small stones to prevent the sand escaping through same whilst at the same time allowing the liquid to be evenly distributed over the graduated gravel for final purification.

The sand in the filter acts as a strainer and collects all the solid, fine matter in suspension which is produced in all septic tank effluent through the splitting up of the solids by decomposition, and unless inserted, especially

with a single tank installation, would very soon choke up the coarse gravel filter media and decrease the capacity of the bed as explained fully in the preceding data.

This filter should be well ventilated and designed as shown, the sizes and dimensions being governed by the number of people served. Provision should be made for cleaning out the septic tank as well as the sand filter at least once a year, then with proper care and attention the results should prove very satisfactory.

In the larger public buildings such as asylums, colleges, schools, hospitals, etc., where the quantity of sewage to be treated is considerably greater, the small Imhoff or two-story sedimentation tank gives better results than the ordinary septic tank. This class of tank has been installed with excellent results by several United States and Canadian cities on a large scale and has produced good results which have remedied to a certain extent the greatest drawback to the septic tank effluent previously described.

Provincial Board of Health Sanitary Equipme

Statistics received from Provincial Sanitary Inspector F. E. Dallyn show that in 1919 the death rate from typhoid fever, in towns of Ontario, was four times as great as in cities.

No better opportunity than this could be had for Sanitary Engineers to demonstrate the value of their profession to the community in which they do business.

Sanitary engineers can cope with the problem of sanitation to best advantage and accomplish the desirable results. It is their field and what characterizes the modern sanitary engineer from the old style plumber.

Few people could not be seriously influenced by the fact that the death rate in towns is four times as great as in the cities if the cause were explained.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Report Shows Great Need of in Ontario Towns

Lack of sanitary conveniences in towns should be as inexcusable as they are in the cities, yet it is estimated that 25% of the dwelling houses in towns have outside conveniences.

People in towns buy pianos, talking machines and other luxuries which cost as much or more than a modern bathroom outfit of the Port Hope Standard, and they will buy bathroom equipment, too, from sanitary engineers that point out the benefits of adequate sanitation.

The existing need for better sanitation can be made to provide abundance of work that will yield good profit and improve conditions throughout the country which need immediate attention.

g. Company, Limited

ax Office:
LDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

FIRE LOSS

Galt, Ont.—Two thousand dollars loss was caused by a blaze which started in the plumbing shop of W. H. Pinkett, when some oakum ignited from flames of a gasoline torch which one of the plumbers was using to thaw out water pipes.

SPEND \$60,000 ON WATERWORKS

Milverton, Ont.—The village of Milverton, with 800 population and an assessment of \$500,000, is spending \$60,000 on a new system of waterworks.

TORONTO PLUMBERS ELECT OFFICERS

Toronto.—The Canadian Local of Plumbers' and Steamfitters' Union, No. 146, elected the following officials for 1921 at their regular meeting: President, W. Paterson; vice-president, J. Falvey; secretary, A. Wright. A resolution was passed protesting against allowing American architects to prepare plans and specifications for public buildings throughout the Dominion.

LOST HIS NERVE ATTEMPTING TO HOLD UP PLUMBER

Windsor, Ont.—Paul Jackson, a 17-year-old youth who said he came here from Chicago, attempted to hold up the plumbing shop of Pennington & Laing, on Caron Avenue, but lost his nerve before the job was half done. He entered the shop with a revolver in his hand, delivered the customary ultimatum to the two members of the firm he found in the office, but after they had complied and elevated their hands, Jackson let his gun drop to the floor and fled to the street. He was chased half a mile and caught by a policeman.

OBJECT TO SEWERS

Dundas, Ont.—Objection is being taken by some of the residents on certain streets against the laying of the sewers as they claim that they are not needed by the class of houses that are built on them. Some of the residents are much opposed to the sewers, for they claim that there is no present or prospective need for them, and it will mean that they will have 15 cents per foot added to their taxes for the next thirty years. When plans were prepared for the sewer system they were made most comprehensive so as to cover the whole town, and they were adopted as prepared.

WESTERN ONTARIO NEWS

James Coulter, Carlyle Ave., Tilbury, Ont., is preparing plans for a new \$5,000 bungalow and wants prices on heating and plumbing.

Trustees of S. S. No. 1 Boundary East, Listowel, Ont., will have plans prepared at once for new school. Prices wanted on heating.

Frank Fisher, Kincardine, Ont., is preparing plans for new \$5,000 bungalow and wants prices on heating and plumbing.

The Lutheran congregation at Brodhagen, Ont., wants prices on heating in connection with new \$35,000 church to be erected this spring.

Imperial Bank has purchased site and plans for erection of new branch office at Harrow, Ont. Building will contain manager's residence above.

Plans will be prepared for a new bank at Harrow, Ont., for the Imperial Bank and work will be commenced early in the spring.

F. Light, plumber and tinsmith at Aylmer, Ont., has to seek new premises as a result of his store being sold and plans to erect a suitable shop near his residence.

Tenders will be called in about three weeks at London, Ont., for an eight-room addition to the Tecumseh School. Prices are wanted on steam heating and plumbing. R. M. McElheran, secretary of the Board.

At the annual meeting of the Masonic Temple Company, of London, Ont., Ben. Noble, of the firm of Noble and Rich, was elected a member of the House Board for 1921.

R. M. McElheran, secy. Bd. of Education, London, Ont., is receiving tenders until February 21 for new lavatories and steam heating, also ventilating system at Victoria School. Estimated cost \$35,000.

Prices are wanted immediately by the Utilities Commissioners at London, Ont., on one 1,000,000 gallon turbine pump, electrically driven, and one 3,000,000-gallon pump, also electrically driven. The first is to operate under 150 pounds and the other 20 pounds. These will be

used for pumping river water to supply the railways. E. V. Buchan, general manager.

At Wallaceburg, Ont., plans will be proceeded with for the erection of a new memorial hospital to cost \$25,000 and prices are wanted on heating, plumbing and electrical equipment.

Prices are wanted by the Parks Board at London, Ont., for hot water heating system in connection with new greenhouses to cost \$7,000. Thos. McFarland, chairman.

LONDON WILL INSTAL FILTRATION PLANT

London, Ont.—The Public Utilities Commission will instal filtration equipment at the Horton Street pumping station at a cost of \$55,000. This equipment is designed to remove traces of sulphur, etc., from a portion of the water supply secured from the Beck artesian wells.

DEFER PLUMBING TENDER

Mimico, Ont.—A tender for plumbing work in the local school submitted by Jas. Doughty, mayor of Mimico, has been held over for consideration, owing to some doubt as to his eligibility to do town work while he holds the position of mayor.

WILL UNDERTAKE MUCH DRAINAGE WORK

Winnipeg.—The Greater Winnipeg Water District will underdrain an additional two and one-fifth miles of the aqueduct immediately east of Deacon, 13 miles east of Winnipeg, it was announced. The cost of the work is estimated at approximately \$120,000.

Construction operations will begin about February 15, when Fowler & Young, contractors, complete the underdrainage of a two-mile section just east of the new section to be drained. The work will give employment to about 50 men. The entire underdrainage work, it is expected, will be completed next autumn.

Contractors are completing the underdrainage of two miles of the tube farther east at a cost of \$80,000. This work will be completed about February 15, the district commissioners reported at the regular meeting of the board.

The new section to be drained is between Mile 15 and one-fifth of a mile from Mile 13. The total drainage outlay will approximate \$200,000.

Convention of Saskatchewan Plumbers

Plans Made for Third Annual Convention of
Saskatchewan Sanitary and Heating Engineers
—Results of Septic Tank Inspection to be
Outlined

REGINA, Sask.—A communication from Secretary J. Adam, of the Saskatchewan Society of Sanitary and Heating Engineers in regard to the forthcoming convention is as follows:

To the members of the Saskatchewan Society of Sanitary and Heating Engineers.

Re Third Annual Convention at Moose Jaw.

I have received word from our president, J. T. Alexander, that the convention will be held from March 1st to 3rd: March 1st—Convention. Meeting of executive only.

March 2nd, a.m.—Convention. Proper to commence.

March 3rd, p.m.—Convention. Wholesalers and jobbers to attend convention.

The convention last year was well at-

tended and it was felt by all present a successful one. It is expected that all members will endeavor to keep these dates open and assist to make our third annual convention even better than the preceding ones. Interest and bring along any firms in your locality, who are not as yet members. Their interests are identical with ours, and the more representative our society is the more power for the good of the trade which we represent.

Moose Jaw can be depended on to make things pleasant for the boys. Let us return the compliment by our presence.

Arrangements have been made to have a report on the results of the "Septic Tank Inspection," which took place last summer. This will be presented by R. H. Murray, sanitary engineer of the Bureau of Public Health.

Back Venting Clause Not Strictly Applied

F. A. Dallyn, Provincial Board of Health,
Upholds Ontario's New Plumbing Regulations

LONDON, Ont.—Prof. F. A. Dallyn, of the Provincial Board of Health, rather effectively shot to pieces allegations that the new Ontario plumbing by-laws are designed to particularly benefit the trade, at a meeting he held here last week with the local board of health. He declared emphatically that the new Ontario regulations are based on the best plumbing practice over a period of sixty years. They are the result, he pointed out, not of one man's experience, nor of one district's experience, but of what has been learned by the best men in the business operating under all sorts of conditions and having all kinds of problems to solve.

Dr. O. I. Cunningham, a dentist, is chairman of the board of health in London and criticized the by-laws because they had been drawn up largely upon information from the sanitary and heating engineers.

"Where else would you expect to get the information required?" asked Prof. Dallyn pointedly, and he went on to state that the plumbers' guild in Toronto is one of the best organized self-instructing organizations in the Dominion. They are thoroughly abreast of the times, he declared, and carry on a campaign of education among their members that makes for constant efficiency. Toronto, he said, has one of the very best sets of

plumbing regulations to be found, not in Canada, but in America.

Prof. Dallyn was in conference with the local board over points of difference in connection with back venting. Chairman Cunningham took the stand that back venting is an unnecessary and useless expense. He gave it as his opinion that plumbing regulations should be under the jurisdiction of the building inspectors rather than the boards of health.

The provincial officer pointed out that even if this were effective any regulations proposed would still have to meet with the approval of the Provincial Board of Health. It did not matter, he said, what department did the work. In connection with back venting he stated that a clause had been inserted in the regulations by which exceptions could be made. The London authorities had completely eliminated clauses in their regulations in reference to back venting and he made it plain that the Provincial Board could not agree to this. The additional cost of installing back vents was equalized, he said, by the fact that repairs could be carried out at considerably less expense than on non-vented systems.

As a result of the conference a preliminary understanding has been arrived at by which the provincial regulations in regard to back venting will not be too strictly applied.

Doings in Ottawa and District

USE PUMPS FOR SEWER DRAINAGE

THE pumping system for sanitary sewer drainage is to be used in a section of Ottawa for the first time in the history of the city. There is an area in the southern part of the city which cannot be drained by gravity into the existing city sewers. It is proposed to drain the sanitary sewerage into a collecting chamber and then to pump it up to the level of the existing sewers in the vicinity. Later on storm sewers will be laid, but there is no immediate necessity for them, owing to the contour of the land.

Heretofore, all the local sewers have been laid on the combined system.

* * *

MORE FREQUENT GARBAGE COLLECTION

One of Ottawa's new aldermen, Herbert McElroy, is strongly urging the adoption of the system of twice-a-week garbage collection during the summer months. Some years ago when the garbage collecting was done by contract the entire city was covered twice every week during the summer, but since the work has been done by day labor there has never been a collection oftener than once a week in any part of the city.

Alderman McElroy points to Toronto and other Canadian centres as shining examples of the success of the twice-a-week system.

The alderman has the following motion for the next meeting of city council:

"That in view of the general feeling that during the summer months a semi-weekly collection of garbage in the residential section of the city would be beneficial as a sanitary measure, the Board of Control be requested to consider the matter in the near future as to its feasibility."

* * *

REPORT OF PLUMBING INSPECTOR

In his annual report Chief Plumbing Inspector S. Daughtry states there were 775 plumbing permits issued between November 1st, 1919, and October 31st, 1920, an increase of 177 over the previous year. During the year five prosecutions were proceeded with. In each and every case the magistrate upheld the by-law.

The inspector recommends that the proposed plumbing by-law, which has been before the city council for nearly four years, be enacted as soon as possible, as the by-law now in force fails to deal with the many sanitary requirements in a modern plumbing system.

The total number of matters attended to during the year by the inspector and his staff was 5,476, as compared with 3,556 the previous year.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

Lauzon, Que.—Council has passed by-law to borrow \$325,000 for construction of waterworks system. Tenders will be called when by-law is endorsed by ratepayers. H. Bourassa, secretary-treasurer.

* * *

Malden, Ont.—Noah Deslippe, secretary Malden township council, will receive tenders until February 16 for drainage work.

* * *

Newmarket, Ont.—By-law has been passed authorizing construction of sewers costing \$29,000 for town. P. J. Anderson, clerk.

TENDERS WANTED

Toronto.—G. F. Smith, 1394 Gerrard St. E., is building two stores and apartments at cost of \$7,000 and will receive tenders for plumbing and heating.

* * *

Toronto.—Philip Brand, 10 Annette St., is erecting a residence and garage costing \$6,500 and will receive tenders for heating and plumbing.

CONTRACTS AWARDED

Louisville, Que.—Heating contract for alterations to church costing \$240,000 for parish council is placed with Germain & Freres, 87 Antoine St., Three Rivers. Furnaces are supplied by Brunelle Furnace & Boiler Co., Yamachiche, at \$16,000.

* * *

Galt, Ont.—R. G. Ballantyne & Son, 31 Colborne St., Brantford, has plumbing contract for plant costing \$25,000 for Elliott & Whitehall.

* * *

St. Catharines.—Preston Bros., 218 Ave., Toronto, have plumbing contract for addition to residence costing \$40,000 for L. E. McKinnon, Glen Ridge.

* * *

Three Rivers, Que.—Plumbing and heating contracts for extension to hotel costing \$20,000 for Dr. C. Deblois are awarded to C. S. Hamelin & Cie.

* * *

Bridgewater, N.S.—Plumbing and heating contracts for bank costing \$50,000 for Royal Bank of Canada are awarded to H. G. Hagen & Co., Hollis St., Halifax.

* * *

Quebec, Que.—Contract for steam heating for store costing \$40,000 for S. N. Parent Estate, 310 Grande Allee, is placed with Vandry & Matte, Ltd., 43 St. Joachim St.

* * *

Toronto, Ont.—Plumbing contract for one pair residences costing \$9,000 for W. J. Wingrove, 83 Bellefair Ave., is placed with John Fraser, 83 Eaton Ave.

Heating contract is awarded to Toronto Furnace & Crematory Co., Ltd., 111 King St. E.

* * *

Toronto, Ont.—Plumbing and heating contracts for residence costing \$5,000 for Wm. Greenwood, 26 Merrill Ave., are awarded to J. T. Bowes, 786 Danforth Ave., and F. Sturdy, respectively. Furnace supplied by Empire Stove & Furnace Co., Ltd., Owen Sound, Ont.

* * *

Toronto, Ont.—Plumbing and heating contracts for one pair residences costing \$7,000 for John Rankin, 68 Roseheath Ave., are awarded to W. J. Crone, 27 Sparkhall Ave., and J. C. French, 505 Pape Ave., respectively.

* * *

Toronto, Ont.—Additional contract for residence costing \$18,000 for Dr. W. J. Wilson, 380 Bloor St. W., heating, Robert Lewis, 11 Ethel Ave.

* * *

Toronto, Ont.—Heating contract for three residences costing \$5,000 each for F. C. Barkey, 22 Norman Ave., is placed with Toronto Furnace & Crematory Co., Ltd., 111 King St. E.

* * *

Toronto, Ont.—Plumbing contract for residence costing \$10,000 for J. A. Shier, 13 Watford Ave., is awarded to Claude Davies, 45 Sellers Ave. Robert Steen, 3 Grimthorpe Ave., has contract for hot water heating.

* * *

Toronto, Ont.—Plumbing and heating contracts for one pair of residences costing \$5,000 each for C. B. Routcliffe, 11 Roseheath, are awarded to Elite Plumbing & Heating Co., 201½ Jones Ave., and Toronto Furnace & Crematory Co., Ltd., 111 King St. E., respectively.

* * *

Three Rivers, Que.—Plumbing contract for four residences costing \$5,000 each for F. X. Vanasse, 37 Du Platon St., is awarded to Henri Biron, 171 Laviolette St.

* * *

Cap de la Madeleine, Que.—Additional contract for erection of grinding mill costing \$500,000, electric work shop costing \$10,000, extension to wet machine room costing \$100,000, extension to motor room costing \$200,000, machine shop, pattern making room, store room and wrapping room, for St. Maurice Pulp & Paper Co., Ltd., plumbing, John Tweedle & Co., 163 Lagauchetiere St. W., Montreal.

* * *

Toronto, Ont.—Additional contracts for addition and alterations to office building costing \$50,000 for Standard Fuel Co., 58 King St. E., Ross & Smith, 70 Lombard St.; plumbing, J. R. Honeycombe, 122 Yarmouth Rd.

CONSTRUCTION

Bonsecours, Que.—J. Colin, Riviere du Loup, Que., is building a school for school board.

Halifax, N.S.—General contract for erection of Art Building, costing \$100,000, for Dalhousie University.

* * *

Barwick, Ont.—Chapple Municipality, Barwick, will build a consolidated school at cost of \$20,000. Jas. M. Johnston, clerk.

* * *

Blanchard, Man.—By-law authorizing erection of hospital will be submitted shortly.

* * *

London, Ont.—L. E. Carrothers, architect, c/o Board of Education, is preparing plans for addition to school to cost \$20,000.

* * *

London, Ont.—Plans will be prepared for Nurses' Home estimated to cost \$35,000 for Provincial Government.

* * *

Brookland, Man.—Ratepayers recently defeated by-law authorizing addition and alterations to school costing \$40,000 for Brookland S. D.

* * *

Cawston, B.C.—Cawston Community Hall Co. will erect a Community Hall.

* * *

Durham, Ont.—Rev. J. S. McGoe, Markdale, Ont., will receive tenders for altering mill into church at estimated cost of \$10,000.

* * *

Eriksdale, Man.—Ratepayers passed by-law authorizing erection of hospital costing \$30,000 for Gov't. and Eriksdale Hospital Dist.

* * *

Hamilton, Ont.—Witton & Walsh, architects, 7 Hughson St. S., are preparing plans for addition to school estimated to cost \$40,000 for Bd. of Education. Tenders will be called shortly.

* * *

Hazlemere, B.C.—United Farmers & Social Club, Hazlemere, will build a public hall. Tenders will be called shortly.

* * *

Holmfild, Man.—Municipality of Killarney, Killarney, Man., contemplates building a hospital at cost of \$15,000. J. G. H. Russell, architect, 1110 McArthur Bldg., Winnipeg.

* * *

Hull, Que.—Erection of addition to school at cost of \$35,000 is contemplated by La Cmsn. Scolaire. Chas. Brodeur, architect, 63 City Hall Ave., is preparing plans.

* * *

Huntingford, Ont.—Plans are being prepared for Parish Hall for Christ Church Congregation. Rev. W. B. Moulton, Rector.

* * *

Melita, Man.—A new by-law authorizing erection of hospital will be submitted at an early date.

Montreal, Que.—Erection of a school costing \$50,000 is contemplated by R. C. School Cmsn., 87 St. Catherine St. W. A. Lafontaine, N.P., secy.-treas.

New Waterford, N.S.—Town council plans altering block into town hall at estimated cost of \$10,000.

Ponsonby, Que.—Parish Congregation contemplates building a church this year.

Pipstone, Man.—By-law will be submitted to ratepayers authorizing erection of hospital.

Roblin, Man.—Municipality of Roblin and Turtle Mountain contemplate building a hospital.

Rodney P.O., Ont.—Plans will be prepared for school to cost \$9,000 for trustees S. S. No. 9, Aldboro Twp., Ont. J. A. McRae, secy., Rodney P. O., Ont.

Rosser, Man. — By-law authorizing erection of school costing \$80,000 for Brookland S. D. No. 1440, was recently defeated by ratepayers.

Russell, Man.—By-law authorizing construction of hospital costing \$100,000 for Prov. Gov't., Winnipeg, will be submitted to ratepayers.

Souris, Man.—Erection of a hospital is contemplated by Souris & Glenwood District, Hugh McCullough, Chrm., Souris.

St. Marys, Ont.—Anglican congregation will rebuild parish hall. Rev. C. K. Masters, Rector.

St. Vital, Man.—Ratepayers defeated by-law authorizing erection of school costing \$50,000.

St. Vital, Man.—Woodman & Cubidge, architects, Trust & Loan Bldg., Winnipeg, are preparing plans for school to cost \$25,000 for Fort Garry S. D., St. Vital.

Swan River, Man.—Swan River Hospital District plans erection of hospital.

Sully, Que.—Erection of three schools is contemplated by School Cmsn. J. N. Boucher, secy.-treas.

Thamesford, Ont.—Plans will be prepared for parish hall for Anglican congregation. Rev. H. E. Bray, pastor.

Toronto, Ont.—Bd. of Education contemplates improving heating system at Technical School by installing two new boilers estimated to cost \$15,000. W. W. Pearse, secy.-treas., 155 College St.

Toronto, Ont.—Erection of addition to church is being considered by St. Chad's Anglican Church congregation. Rev. A. J. Reid, pastor, 946 St. Clarens Ave.

Divergent Views on Filtration

Engineers Discuss Relative Merits of Processes Used in Toronto—Sand Filters Best for Treating Lake Water

TORONTO.—The success of the portion of the Toronto filtration plant in which the "drifting sand" process is being used was the subject of an extended discussion before the municipal section of the Engineering Institute of Canada at a recent meeting. The discussion arose out of a paper dealing with the operation of the local filtration plant by James Milne in which he gave details of the operation of the two processes in use there—the "slow sand" and "drifting sand" processes—and tables of the operating costs in each case. Allen Hazen, of New York, the engineer who had prepared the designs from which the original "slow sand" plant had been constructed, contended that some of the deductions made by Mr. Milne in favor of the "drifting sand" process were unfair.

Mr. Milne's findings were very favorable to the newer process especially in the matter of capacity. "The principle of the drifting sand has proved to be sound and the continuous sand-washer is a success," he said. "By chlorination with filtration including administration, operation and maintenance, interest and

sinking fund, will be practically the same in both plants."

Mr. Hazen asserted on the other hand, "on the face of the returns, the old plant, built by Mr. C. H. Rust, City Engineer, from designs made by the writer, seems to have been distinctly the more satisfactory from every point of view. It was certainly cheaper to build; it is cheaper to operate; and from advice otherwise received, it appears to be more successful in purifying the lake-water." In figuring cost comparisons, he claimed, Mr. Milne had dealt unfairly with the older plant. He stated that the old plant had demonstrated a capacity of 52 million gallons per day or equal to that figured by Mr. Milne for the drifting sand process. He contended that from a purification standpoint the older process was much more effective and remarked that looking at it from the standpoint of eight years afterwards, he still held to the soundness of the position he had taken in 1912, that sand filters on the lines of the first plant were best adapted to treating Lake Ontario water for the City of Toronto.

Toronto, Ont.—St. John the Baptist Anglican Church congregation plans to erect Parish House to cost \$25,000. Plans will be prepared. Rev. Canon W. L. Baynes Reed, pastor, 156 Kingston Rd.

Toronto, Ont.—Erection of new Sunday School or addition to present bldg. is planned by St. Matthew's Anglican Church congregation, Rev. C. A. Seager, M.A., pastor, 1A Langley Ave.

Toronto, Ont.—Erection of a Church Home is contemplated by St. Paul's Anglican congregation. Rev. Edward Morley, pastor, 250 Willard Ave.

Toronto, Ont.—Erection of a Parish House is contemplated by St. Cyprian's Anglican Church congregation. Rev. R. Seaborn, pastor, 84 Follis Ave.

Toronto, Ont.—Construction of a Memorial Hall is being considered by St. Stephens Anglican Church congregation. Rev. Thos. Wallace, pastor, 99 Bellevue Ave.

Toronto, Ont.—St. Barnabas Church congregation contemplates building addition to church. Rev. F. E. Powell, pastor, 752 Logan Ave.

Toronto, Ont.—St. John's Anglican Church congregation, Rev. R. McNamara, pastor, 208 High Park Ave.,

purchased site at north-east corner of Humberside and Quebec Aves. for erection of church estimated to cost \$50,000.

Toronto, Ont.—St. Matthias Anglican Church congregation plans to erect a Parish House. Rev. F. H. Hartley, pastor, 63 Bellwoods Ave.

A SCRAMBLE FOR GOODS

During an interview with Mr. John Jardine, of A. B. Jardine & Co., Res-peler, Ont., it was stated to Sanitary Engineer that the lack of buying of plumbing and heating requirements now will cause a scramble for goods later on, and manufacturers may then not be able to meet the demand. He stated that the manufacturers are not now in position to make goods and hold them and thus cannot speed up production now in anticipation of a later stimulus.

CHATHAM STEAM HEAT COMPANY PROMISES TO DO ITS BEST

Chatham.—The Chatham Steam Heat Company has made arrangements to use the boilers of the Chatham Gas Company and discontinue using the plant of the C. W. & L. E. Railway. The company has decided to maintain service, and while not assuring the patrons satisfactory service during extreme conditions, will maintain the best possible service for the balance of the winter. Next year, it is thought, a new central plant will be built.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

L EAD pipe and waste have been reduced in price again and compression work is lower. Other declines have been made in bar iron and steel, and in black sheets and English standard galvanized sheets. Some lines of solder are lower and plumbers' oakum has been reduced. Price changes are not so numerous and most lines are holding at recent declines. Wrought pipe and fittings, soil pipe, range boilers, radiators, conductor pipe and eavestrough, etc., as well as enamelled ware and closets are unchanged in price. Ingot metals are still quiet, but a better tone is observed in these, and copper is showing more firmness. In

the steel markets there is not much change or improvement shown, and reports from Pittsburgh districts indicate that the present rate of pig iron production is only at the rate of 60 per cent. of capacity and predictions are that it will be very much lower in the course of the next two or three months.

Business on the whole is quiet, but a little improvement is noticed in some directions, and spring bookings are reported by some wholesalers to be encouraging. With the resumption of building operations in the spring it is expected that sales will show a substantial increase.

MONTREAL

MONTREAL, Feb. 12.—Lower quotations on bar iron and steel, black sheets, English standard sheets, lead pipe and solders are given for this issue. Practically all lines of bar iron and steel are lower, black sheets show a substantial reduction and English standard sheets are quoted at a reduction of 50 cents per 100 pounds on all gauges. Lead pipe and waste are 1 cent per pound less, and a reduction from 1 to 2 cents is made on the different solders. Corrugated sheets, radiators, boilers, pipe and pipe fittings remain steady and no change of price is noted on soil pipe or oakum. Enamelled ware, closets and compression goods hold at present prices. Eavestrough and conductor pipe remain at prices set a few weeks ago. Business in practically all lines shows a slight improvement over the previous quiet months and spring bookings, for many lines are now coming in.

Bar Iron is Lower

Montreal.

Lower quotations are made on practically all lines of bar iron and steel. The reduction runs from 25 to 35 cents per 100 lbs. on the different grades, common bar iron now selling at \$4.20, the old price being \$4.55. Business continues quiet, with stocks fairly light. Following are the quotations:

Common bar iron, 100 lbs.	4 20
Refined iron	5 80
Iron finish machinery steel	4 25
Mild steel	4 20
Single reeled machinery steel	6 80
Band steel	4 20
Spring steel	6 00
Sleighshoe steel	4 20
Tire steel	4 40
Tie calk steel	5 20
Harrow tooth steel	4 35
Mining tooth steel, per lb.	0 24½
Black Diamond tool and cast steel, per lb.	0 24½

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Scrap Metals Dull

Montreal.

Business is reported very quiet in scrap metals, very little buying or selling being done. Dealers are of the opinion, however, that the dull season is nearing an end and look for an increased volume of business in the near future, as enquiries continue to be made. Present quotations are as follows:

Dealer's Buying Prices

Automobile tires	0 75	....
Yellow brass	0 07	....
Red brass	0 12½	....
Light brass	4 50	....
Scrap zinc	0 05	....
Lead, heavy	4 00	....
Lead, tea	2 50	....
Light copper	9 00	....
Heavy copper	11 50	....
Wrought iron, R. Rd., No. 1, per gr. ton	13 00	....
Malleable scrap (ton)	15 00	....
Pipe scrap (ton)	9 00	....
Heavy melting steel	15 00	....
No. 2, busheling	5 00	....
Boiler plate	12 00	....
Stove plate (ton)	20 00	....
No. 1 machinery cast	25 00	28 00

New Sap Bucket Prices

Montreal.

With the sap and maple syrup season fast approaching, stocks of both buckets and spouts are ready for deliveries. Booked orders on these are not as heavy as last year, still a good volume of business is expected. Some manufacturers are making their buckets of Imperial measure this season, thus enabling the purchaser to determine just what size he requires. They will be sized as 1 gal., 1½ gal. and 2 gallon. The older sizing method is also still used and quotations on both are as follows:

SAP BUCKETS.—No. 7, \$20.13 per hundred; No. 8, \$21.88; No. 9, \$24.50; No. 12, \$26.25; No. 16, \$31.50.
1 gal., \$21.88; 1½ gal., \$26.25; 2 gal., \$31.50 per hundred.
Eureka, \$16.50; Perfection, \$25; Sterling, \$38 per thousand.
Square syrup cans, \$26 per hundred.

Sheets are Reduced

Montreal.

Lower quotations are now given on black and English standard galvanized sheets. Prices on sheets are governed to a great extent at present by stocks on hand, and even lower prices may be expected at not far distant date, it is believed. On U. S. standard sheets no change is quoted, but lower prices will no doubt be given within the next week or so. The decline on black sheets runs from 2.75 on the lighter gauges to 3.50 on the heaviest or 10 gauge. English standard sheets show a reduction of 50 cents per 100 pounds on all gauges. Quotations are as follows:

BLACK SHEETS—

10 gauge	7 75
12 gauge	7 80
14 gauge	8 10
16 gauge	8 25
18-20 gauge	8 30
22-24 gauge	8 40
26 gauge	8 50
28 gauge	8 75

GALVANIZED SHEETS—

U.S. Standard—		
10 3/4 gauge	11 75	
28 gauge	11 25	
26 gauge	11 00	
22 and 24 gauge	10 85	
20 gauge	10 65	
18 gauge	10 65	
16 gauge	10 50	
English Standard—		
28 gauge	12 50	11 50
26 gauge	12 25	11 25
24 gauge	11 65	10 85
22 gauge	11 30	10 40
18 and 20 gauge	10 60	10 25

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Corrugated Sheets Held

Montreal.

The recent decline still holds on corrugated sheets. Business remains quiet with very few sales being made; this, however, is only thought seasonal and the demand will not likely improve much until the spring season opens. Prices are as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	10 50
No. 26 gauge	11 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7 1/2 %	

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

No Change in Oakum

Montreal.

No change has been made in the price of plumbers' oakum and it is still selling at 11 cents a pound in 50 lb. bales, and 12 cents for smaller quantities.

Soil Pipe Unchanged

Montreal.

The demand for soil pipe is small at present. However, this quiet period is experienced every year at this season. A greater volume of business may be looked for soon, as dealers will soon be getting their spring deliveries. Quotations are held as follows:

SOIL PIPE (medium and extra heavy)—	
2 and 3 inch, 10%.	
4 inch, 20%.	
5 and 6 inch, 15%.	
8 inch, add 5 %.	

FITTINGS—	
2 to 6 inch fittings, 40%.	
8 inch fittings, plus 5%.	

Conductor Pipe 50/10% Off

Montreal.

Quotations on conductor pipe now are 50 and 10 per cent. off the list. Business is very quiet at the present time. However, the new lists, with discounts, may stimulate buying for spring deliveries. Following are the prices on both round plain and round corrugated:

CONDUCTOR PIPE—	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00
Discount 50/10% off.	

Eavestrough 50/10% Off

Montreal.

Prices an eavestrough are 50 and 10 per cent. off list. Dealers report very little business offering. However, this

may be expected at this season of the year. Following are the quotations:

EAVETROUGH—

O.G. Square Bead—	Per 100 ft.	Per 100 ft.
8 in.	15 90	15 inch 28 80
10 in.	17 70	18 inch 36 80
12 in.	21 20	
O.G. Round, and Half Round—		
8 in.	16 90	15 inch 29 80
10 in.	18 70	18 inch 37 80
12 in.	22 20	
Discount 50/10% off list.		

Conductor Elbows 50% Off

Montreal.

Present quotations on conductor elbows are 50 per cent. off list. Round corrugated and plain round are the same price. Following are the quotations:

CONDUCTOR ELBOWS—

Plain round or round corrugated—	
2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00
Discount 50% off.	

Boilers and Radiators Firm

Montreal.

The business offering on boilers and radiators is now slower and few sales are being made. Prices are holding firm, with no change made since the decline at the commencement of the year. Quotations are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 40% for hot water and 41% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 50 off list.

Square or sectional hot water or steam boilers, 15-in., list price.
For Ontario Government trimmings add 5 per cent. to list.

Square or sectional water boilers, 19-in to 36-in., 2 1/2 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., list price. Ontario Government trimmings, add 5 per cent.

Square or sectional water or steam boilers, 48-in., list prices. Ontario Government trimmings, add 5 per cent.

Round steam boilers, standard trimmings, 5 per cent. off. Ontario Government trimmings, list price.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Wrought Pipe Unchanged

Montreal.

List No. 48 is still the quotation on piping. With stocks now in good shape, the scarcity on some sizes being well overcome, lower prices are looked for in some quarters. However, prices now quoted are:

**LIST NO. 48.
PIPE—WROUGHT
Standard Butt Weld Pipe**

	Per 100 Ft.	Steel	Gen. Wrought Iron
		Blk.	Galv.
1/4	\$ 6 50	\$ 8 50	\$. . .
1/2	5 31	7 41	5 81
3/4	5 31	7 41	5 81
1	7 10	8 63	7 95
1 1/4	8 80	10 87	9 95
1 1/2	13 01	16 07	14 71
2	17 60	21 74	19 90
2 1/2	21 04	25 99	23 79
3	28 31	34 97	32 01
3 1/2	44 75	55 28	50 00
4	58 52	72 29	65 00
4 1/2	74 06	90 62	82 00
5	87 75	107 37	98 00

Standard Lapweld Pipe

	Per 100 Ft.	Steel	Gen. Wrought Iron
		Blk.	Galv.
2	\$32 01	\$ 38 67	\$35 71
2 1/2	48 26	58 79	54 11
3	63 11	76 88	70 76
3 1/2	75 90	92 46	85 10
4	89.93	109.55	100.83
4 1/2	1 05	1 29	1 30
5	1 22	1 50	1 52
6	1 58	1 95	1 97
7	2 06	2 53	2 53
8L	2 16	2 66	2 66
8	2 49	3 07	3 07
9	2 98	3 67	3 67
10L	2 77	3 41	3 41
10	3 56	4 39	4 39

No Change in Fittings

Montreal.

The recent decline in the price of pipe fittings still holds, and a fair demand has kept up for these different lines. Stocks are in very good shape, although a shortage is felt on some sizes. Quotations are:

	Less
Bushings, cast	20%
Do., malleable	20%
Flanges	20%
Plugs	17 1/2%
Flange unions	7 1/2%
Malleable unions	32 1/2%
Nipples, black or galvanized up to 4 in.	50%
Do., 4 1/2 in. or larger	40%
Do., running thread, 4 in. and under	30%
Couplings, 4 in. and under	20%
Do., 4 1/2 in. and larger	Net list
POUND GOODS—	Black
Class B	0 20
Class C	0 13
Add 17 1/2 %.	0 20

Range Boilers Quiet

Montreal.

Prices on range boilers are unchanged, with business quiet. A few orders are being forwarded, but these are small and represent only present requirements of the different dealers. Present quotations are as follows:

RANGE BOILERS—	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	
35-gallon	15 00		
40-gallon	17 00	19 00	
52-gallon	24 00		
66-gallon	32 00		
82-gallon	42 00		
100-gallon	50 00		
120-gallon	60 00		

No Change in Waste

Montreal.

No further change is made in the price on cotton waste. A decline was made just recently on waste when lower prices became effective on all grades, both in colored and white. A gradual improvement is noted on the sales, and business has greatly improved during the last two weeks. Prices are as under:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 18 1/2
XX	0 17 1/2
X	0 16 1/2
XLGR	0 16 1/2
Empire	0 15 1/2
X Press	0 13 1/2
6X Special	0 12
COLORED	
Fancy	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09
WOOL PACKING	
Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS Washed and Sterilized.

White Cotton	0 20
Colored Cotton	0 15
Above lines subject to trade discount for quantity.	

Enamelled Ware Improving

Montreal.

No change has been made in the price of enamelled ware. Manufacturers and jobbers report that business shows more improvement over the last few quiet months, and if building opens up to any extent in the spring a good season is expected along these lines. Quotations are as follows:

Sinks, roll rim, 18x30 in.	19 55
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 38 \$6 29 \$6 20
18 x 30	7 40 7 31 7 22
20 x 30	8 41 8 33 8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	\$43 69
Bath tubs, 5½ feet	48 54
Lavatories—	
17x19" Apron F139 or P4045	13 00
18x24" Apron F154 or P3845 or P3847 ..	20 06
18x21" Apron F169 or P4205	14 96
17x19" Roll Rim, F241 or P4345	10 71

Closets are Unchanged

Montreal.

The same situation applies to closets as to enamelled ware, and an improvement in sales is noted. Prices are unchanged and are as quoted under:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 30
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Compression Goods Held

Montreal.

Prices on the different lines of compression goods remain unchanged, with business continuing fair. A change to lower levels may be expected on some of the different lines in the near future. Quotations are as follows:

Compression work, standard	Less 25%
Fuller work, standard	30%
Bath cocks, compression	30/5%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, stand...	35%
Brass steam cocks, 3 in. and smaller...	30%
Brass steam cocks, 3½ and 4 in.	Net list
Globe angle and check valves	20%
Do., twin check	25%
J. M. T.	10%
J. M. T. C.	20%
Standard Gate Valve	5%
Radiator valves, standard	40%
Do., removable disc	50%
Basin cocks, No. 1 and 2, Fuller pattern	30%
Do., quick opening	28%

Lead Pipe and Solders Down

Montreal.

Lead pipe and lead waste are reduced one cent per pound, quotations now are 12½ cts. for piping and 13½ cts. for waste. All grades of bar solder are down one cent per lb. also. Wire solder is

reduced from 1½ to 2 cents per lb. Present quotations are as follows:

Lead pipe, per. 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	Net list
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼ c lb. extra and cut sheets to size. ¾ c lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., wiping, lb.	0 22¾
Wire solder—	
40-60	0 27¼
45-55	0 28¾
55-60	0 30½
Zinc sheets, casks	0 14½
Do., broken lots	0 15½

Gas Stoves Selling Well

Montreal.

Gas stoves and heaters are now selling well and bookings for these are said to be quite heavy at the present time. Locally the moving of tenants may have a great bearing on these. Oil stove bookings are also reported as being normal with other years. Spring deliveries on these will soon commence.

Ingot Metals Steadier

Montreal.

Although no marked change is reported on ingot metals, the market

shows signs of being somewhat steadier than it has for the past few weeks. Prices on tin, copper and lead are slightly advanced from last quotations.

TIN.—Tin continues irregular in London, but some judges are of the opinion that the recent liquidation is nearly through and a more stable market may be looked for. Whether this is only premature is hard to determine. Local price is 39 cts.

COPPER.—This metal shows a firmer tone in London and New York and the market is strictly stronger, however, whether lasting is hard to tell. Prices on electro, 19 cents; casting, 18¾ cents.

LEAD.—Lead has been a little easier in London and has touched the low point of 4.40 in the United States. Local quotations are 6¾ cents.

SPELTER.—A firmness is shown in London on spelter and evidently the bottom has been reached in U.S.A., however the recovery will probably be slow. Local price, 7¾ cents.

ANTIMONY.—A quiet market continues on antimony and little demand is shown. The local price is unchanged at 8 cents.

ALUMINUM.—Aluminum is still very quiet and there is practically nothing new to report on this metal. Local quotations, 34 cents.

TORONTO

TORONTO, Feb. 12.—Price changes are fewer in plumbing goods, and the chief features are probably the lower quotations on brass goods, with declines in standard compression work and stop and waste cocks and another reduction in the price of lead pipe and lead waste. Plumbers' oakum is lower and a slight reduction has been made in black sheets. Other lines are holding unchanged and prices are maintained on wrought pipe and fittings, cast pipe, bar iron and steel, radiators, range boilers, eavestrough and conductor pipe, etc. Ingot metals are quiet still but are showing a better tone and more firmness is shown in copper markets. Scrap metals are showing little change and are quiet. Wares and closets are unchanged and are quieter than they have been. Wholesalers report a quiet time, but a fair movement of goods is taking place for the time of the year. Plumbers generally have not had the business that the extra cold weather usually brings, but on the other hand have been enabled to finish other jobs that are often held up on account of the weather at this period of the year.

Iron and Steel Quiet

Toronto.

Though a fair amount of orders are being received for bar iron and steel, they are small, and the volume of business is light. No great improvement is looked for during the next few weeks. There is no quotable change in prices and following are market quotations:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter...	\$ 5 25
Common bar iron, 3-16 in. and lighter...	5 25
Common bar iron, ¼-in. and heavier	4 75
Angle base	4 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 25

Spring steel	12 75
Mining drill steel	23 00
Common cast tool steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Radiators are Unchanged

Toronto.

Business is lighter on radiators now, and no changes have been made in prices. The discount for hot water remains 40 per cent. off list, and for steam radiators 41 per cent. On wall radiators 39 per cent. is quoted off list. Following are list prices:

Revised radiator list prices fare for 1, 2, 3, 4, and 5-column radiators per square foot.
 45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 40% for hot water and 41% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 30%.

No Change in Soil Pipe

Toronto.

Soil pipe and fittings are held unchanged at the prices set last month and sales are limited at this period of the year. The quotations are as follows:

SOIL PIPE (medium and extra heavy)—
 2, 3, 10%; 6 and 8-inch, 15% discount.
 4-inch, 20% discount.
 8 inch, add 20% to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
 8-inch, net.

Wrought Pipe Unchanged

Toronto.

Sales continue to be fairly good in pipe for the season of the year and stocks are in better shape now than they have been for a long time, and now that supplies have had time to accumulate the demand will possibly slacken until the spring business opens up. Prices are holding unchanged and are as follows:

LIST NO. 48.

Standard Butt Weld Pipe

Per 100 ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
1/4	\$ 6.50	\$ 8.50	\$ 5.91	\$ 8.01
1/2	5.31	7.41	5.91	8.01
3/4	5.31	7.41	5.91	8.01
1	7.10	8.63	7.95	9.48
1 1/4	8.80	10.87	9.95	12.02
1 1/2	13.01	16.07	14.71	17.77
1 3/4	17.60	21.74	19.90	24.04
2	21.04	25.99	23.79	28.74
2 1/4	25.31	34.97	32.01	38.17
2 1/2	44.75	55.28		
3	58.52	72.29		
3 1/2	74.06	90.62		
4	87.75	107.37		

Standard Lap Weld Pipe

Per 100 ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
1/4	\$32.01	\$38.67	\$35.71	\$42.37
1/2	48.26	58.79	54.11	64.64
3/4	63.11	76.88	70.76	84.53
1	75.90	92.46	85.10	101.66
1 1/4	89.93	109.55	100.83	120.45
1 1/2	1.05	1.29	1.30	1.54
1 3/4	1.22	1.50	1.52	1.80
2	1.58	1.95	1.97	2.33
2 1/4	2.06	2.53	2.53	3.01
2 1/2	2.16	2.66	2.66	3.16
3	2.49	3.07	3.07	3.64
3 1/2	2.98	3.67	3.67	4.36
4	2.77	3.41	3.41	4.05
4 1/2	3.56	4.39	4.39	5.21

No Change in Fittings

Toronto.

Business is reported to be seasonably fair in pipe fittings though sales are small. Prices are holding at the recent declines and quotations are the following:

PIPE FITTINGS

Cast iron fittings	10%
Plugs	20%
Bushings	25%
Unions, 1/4 in. to 2 in.	35%
Do., 1/2 in., 2 1/2 in. to 4 in.	30%
Dart-Unions, blk., 1/4 in. to 2 in.	20%
Do., 1/2 in., 2 1/2 in. to 4 in.	8%
Do., galvanized, add to black	30%
Nipples, black and galvanized, 1/2 to 4 in.	50%
Do., 4 1/2 in. and larger	40%
Do., running thread	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 60	0 75
Class B	0 26	0 36
Class C	0 17	0 26

Eavestrough and Pipe Hold

Toronto.

Eavestrough and conductor pipe are holding at recent changes and the movement of these goods is slow at the present time, but this is always expected during this month. Both trough and pipe are being quoted at 50 and 10 per cent. off new lists, which are as follows:

TROUGH (Eave)

O. G., Square Bead and half round.		Size in girth:	
	Per 100 ft.		Per 100 ft.
8-in.	\$15 90	15-in.	\$28 80
10-in.	17 70	18-in.	36 50
12-in.	21 20		
Less 50/10 per cent.			

PIPE (Conductor)

Plain, round or corrugated.

Per 100 ft. in 10 ft. lengths.	
2 in., in 10-ft. lengths, list	\$18 40
3 in., in 10-ft. lengths, list	22 30
4 in., in 10-ft. lengths, list	29 60
5 in., in 10-ft. lengths, list	40 00
6 in., in 10-ft. lengths, list	49 00
Less 50/10%.	

Conductor Elbows 50% Off

Toronto.

Conductor elbows are holding at the recent reduction and are quoted at 50 per cent. off new list. There is not very much demand for these goods at present. Quotations are the following:

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 50%.	

Sheets and Plates Quieter

Toronto.

Prices are not showing much change on sheets and plates, although black sheets are shaded a little lower. The demand for the lighter gauges of both black and galvanized sheets is not as heavy as is usual even at this quiet period of the year, but there is a better feeling reported in the heavier sheets and plates.

Supplies are greatly improved, and with many of the steel mills in the States closed down, wholesalers state that they are able to get better shipments than formerly and without the delay that latterly had become a regular feature.

Following are the prevailing quotations:

BLACK SHEETS

14 gauge	6 30	7 70
16 gauge	6 40	7 75
18-20 gauge	6 75	7 80
22-24 gauge	6 80	7 85
26 gauge	6 85	7 90
28 gauge	7 00	8 00

PLATES

10 gauge plate	6 20
12 gauge	6 25
14 gauge	6 30
16 gauge	6 40

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

An extra 10c per 100 lbs. is also charged on sheets 36 inches wide.

GALVANIZED SHEETS

Premier and Apollo

10 3/4 oz.	9 50	10 50
U.S. 26 gauge	9 10	10 20
U.S. 26 gauge	8 80	9 95

22 and 24 gauge	8 65	9 70
18 and 20 gauge	8 50	9 55
16 gauge	8 35	9 40
12 and 14 gauge	8 30	9 35

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Corrugated Sheets Unchanged

Toronto.

Stocks of corrugated sheets are in fair shape now and business is extremely light. Prices are unchanged at the new lists adopted last month, and following are the quotations:

CORRUGATED SHEETS—

Per 100 sq. ft.

No. 28 gauge	10 50
No. 26 gauge	11 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7 1/2%.	

For 1 inch corrugation add 50c per square extra.

Ware Prices Hold

Toronto.

Business is reported quiet in enamelled ware though some wholesalers state that sales are better than is sometimes the case during the quiet period. The extremely mild weather has been favorable for the completion of new buildings, and it is believed that the resumption of building construction in the spring will see a revival in the demand for wares. Prices are holding unchanged and the following are quotations on some of the better known lines:

Bath tubs, 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	\$16 25
Do., do., 5 1/2 ft., net	17 50

Lavatories—

18x24" Apron F154 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205.....	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345.....	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—		1 only	2 only	3 only
16 x 24	\$7 60	\$7 70	\$7 80	
18 x 30	8 50	8 60	8 70	
20 x 30	9 70	9 80	9 90	

All above list except lines marked net.
 Discount 20% off these prices.

Closets are Unchanged

Toronto.

Prices are holding on closets and closet fittings, and no changes are recorded. Sales are on the light side now and the demand is reported to show little improvement. Quotations are as follows:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
17x10" Apron F139 or P4045	15 30
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enamelled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Some Brass Goods Lower

Toronto.

A few changes have been made in the prices of brass goods, and standard compression work is now quoted at 34 per cent. off list in place of 25 per cent. Stop and waste cocks are also lower and are quoted at 34 per cent. off. Other prices are holding. Business is quieter, but a fair amount of sales are being made for the period of the year. Following are market quotations:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	30%
Do., Fuller	30%
Flatway stop and waste cocks, standard	34%
Roundaway stop and waste cocks, standard	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J.M.T.	10%
J.M.T. C.	20%
Gate or straightway	7/10%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Quick opening	28%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Lead Pipe and Waste Lowered

Toronto.

Another reduction has just been made in the price of lead pipe and lead waste pipe and list prices are one cent lower. Lead sheets are still at same quotations, and solders are holding at recent declines. Business is said to be a little quieter, though a fair amount of sales are reported for the season. Present quotations are as below:

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	Net
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½
Cut sheets ½ c to ¾ c lb. extra and cut sheets to size 1 c lb. extra.	
Solder, wire, lb.	0 36
Do., 40-60	0 26½
Do., 50-50	0 29
Do., strictly, lb.	0 27
Do., commercial, lb.	0 24½
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 25
Zinc sheets, per lb.	0 16½
Calking lead	0 08 0 09½

Plumbers' Oakum Lower

Toronto.

Reductions have been made on oakum, and plumbers' oakum is now quoted at \$4 per bale of 50 pounds. This is a reduction of approximately 15 per cent. The demand is light just now.

Boiler Tubes in Better Demand

Toronto.

A little better demand is being shown during the past week or so for boiler tubes, although sales are still below the average for the time of the year. Prices continue firm and show little change, though a slight revision has been made in one or two sizes. Present quotations are as follows:

BOILER TUBES—	Seamless	Lapweld
1 inch	\$28 00	\$.....
1½ inch	32 00	
1½ inch	33 00	
1½ inch	35 00	
2 inch	35 00	28 00
2½ inch	38 00	32 00

2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	46 00
4 inch	92 00	60 00

White and Red Lead Hold

Toronto.

No changes have been made in the quotations on red or white lead, either in oil or dry, and prices are held unchanged. Turpentine is quoted at \$1.30 in five-gallon lots, and raw linseed oil at \$1.15 for less than barrels.

Range Boiler Prices Held

Toronto.

No further changes have been made in quotations on range boilers and sales are reported to be normal in the standard sizes. Prices are the following:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Small Demand for Waste

Toronto.

A smaller demand is being experienced for cotton waste, and prices are holding at recent declines. Present quotations are the following:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 21
XX	0 19½
X	0 17½
XX, grad.	0 17½
XLGR	0 15
X Empire	0 16
X Press	0 13½
XC	0 16½
COLORED	
No. 1	0 14½
No. 7	0 13½
No. 1A	0 12½
No. 1B	0 11½
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09
Above lines subject to trade discount for quant.	

Changes in Tool Prices

Toronto.

There have been some price changes in some tools used by the plumbing and steamfitting trade. The Billing & Spencer make of Stillson wrench has been reduced 10 per cent. in price. Victor hack saw blades are down 5 per cent. Some makes of hack saw frames have been revised and are from 5 to 10 per cent. lower. The National make of vises are showing new prices, and the Self Locking pipe vise, No. 71, is now quoted at \$5 list; No. 72, at \$7.50, and No. 73, at \$11. The discount from list is 15 per cent.

Quiet Tone to Scrap Market

Toronto.

A quiet but slightly firmer tone has been evident in the waste material market, and the consuming demand has not improved. Non-ferrous scrap metals have stood still, dealing has been small and prices are unchanged. The undertone, however, has been uncertain, due, it

is stated, to the virgin situation. The following are nominal quotations for fair sized quantities:

WASTE MATERIAL

No. 2 busheling	13 00
Stove plate, per ton	19 00 20 00
Scrap pipe	8 00 9 00
Yellow brass	6 00 7 00
Red brass	10 00
No. 1 machinery cast	24 00 25 00
Heavy melting steel	15 00 16 00
Heavy copper	10 50 11 50
Light copper	8 00 9 00
Scrap zinc	4 00 4 50
Light brass	4 00 4 50
R.Rd. wrought iron, No. 1, per gr. ton	13 50 14 50
Heavy lead pipe	4 00 4 50
Old rubbers, boots and shoes	3 00 3 50
Overshoes, lumbermen's rub. boots	2 00 2 50
Bicycle tires	0 75 1 25
Automobile tires	0 50 1 00
Tea lead	2 00 2 25

Ingot Metals—A Better Tone

Toronto.

Ingot metals are still quiet and practically unchanged, although a little better feeling is prevailing and the undertone is firmer. Copper is showing a better tone due to an expanding demand.

TIN.—Prices are holding unchanged on tin but very little business is reported. London markets are decidedly weak in this metal and there is said to be an entire absence of demand. Prices there went to the lowest levels they had reached since 1914, but recovered later. Local quotations are holding at 43 cents.

COPPER.—An improvement is reported in outside markets on copper, and though the increase in demand is yet small, producers' prices are said to be firmer. On local markets there is little change and prices are holding at 19 cents for casting copper.

LEAD.—The lead market is still dull and quiet and little change has taken place in prices. The demand in outside markets is reported as irregular and fitful with little buying on the part of consumers. Markets in London are weaker. The price here is unchanged at \$7.

SPELTER.—Little change is shown in spelter, and home and outside markets are quiet and dull. Buyers seem in no hurry to place orders. Quotations locally are holding at \$7.

ANTIMONY.—The market for this metal is not showing any life and with little or no business offering quotations are made at 8 to 9 cents.

ALUMINUM.—Home markets are reported quiet in this metal, but a better inquiry is noted in U. S. markets and a firmer tone is evident than has been the case for some months. London prices are holding firm. Quotations here are still 35 to 37 cents.



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This **MUELLER** connection, because of several late improvements in construction, can be installed much quicker than any other make. The waste elbow and overflow are cast brass, overflow strainer is cast and the waste strainer is of heavy wrought brass.

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WINNIPEG MARKETS

WINNIPEG, Feb. 12.—There are very few price changes in plumbing and steamfitting supplies to record. Among the lines on which a change has been made is solder. Prices on this commodity have declined 3 cents per pound. Boiler tubes are also reduced about 4 cents per foot. Canada plate is lower and is being quoted at a decline of \$1.75 per box. Business is still quiet, and though it shows signs of picking up it is not as good as it might be.

Solder Down Three Cents

Winnipeg.

The price of solder has been dropped another 3 cents per pound and is now quoted at 31 cents in case lots and 32 cents in less than case lots. Tinkers' solder is 45 cents per pound.

Canada Plate Marked Down

Winnipeg.

The price has been changed on Canada plate this week. Prices have been nominal for some time past and the present quotation is approximately \$1.75 lower than previous price. Shipments are coming in better and conditions are looking brighter for this line. The prices are as follows: Ordinary—18x21 \$11.50 per box, 18x24 \$11.50 per box, 20x28 \$11.75 per box.

Boiler Tubes Reduced

Winnipeg.

The price on boiler tubes has been low-

ered and they are selling for 3 cents per foot less. The present day prices are:

1½ in., 28c per foot; 2 in., 28c; 2¼ in., 34c; 2½ in., 35c; 3 in., 45c; 4 in., 65c.

Pipe Shipments Better

Winnipeg.

Prices have not changed on wrought iron pipe and there is no indication of any change. Shipments are coming in more frequently and stocks are now in better shape. Sales are light at the present time. The prevailing prices are as below.

		Per 100 ft.	
		Blk.	Galv.
¾ in.	.....	\$ 6 21	\$ 8 69
1 in.	.....	5 94	8 28
1¼ in.	.....	6 12	8 46
1½ in.	.....	8 24	9 95
2 in.	.....	10 22	12 51
2½ in.	.....	15 08	18 50
3 in.	.....	20 43	25 02
3½ in.	.....	24 48	29 93
4 in.	.....	32 94	40 28
4½ in.	.....	53 33	65 39
5 in.	.....	70 07	86 40
6 in.	.....	88 20	107 10
	.....	104 40	126 90
	.....	124 20	152 10
	.....	144 90	177 30
	.....	188 10	229 50

CONSERVATION OF HEAT

Toronto.—That factories which use coal for fuel are losing thousands of dollars every year where superheaters and economizers have not been installed was the main issue emphasized by F. A. W. Taylor in an address given at the Engineers' Club. With the high price of bituminous coal, the speaker said, manufacturers paid too little attention to the conservation and development of heat, a very large percentage of which goes up the chimney as waste would be a comparative saving in fuel if factories were closed all day Saturday, and advocated the buying and selling of coal by British thermal units. "Then," said the speaker, "we would not be paying for the dirt and slate that we are obliged to shovel into our furnaces."

URGES REDUCED DRAINAGE TAXES

Winnipeg.—Drainage taxation should be levied on any land, the waters of which are conducted by an artificial channel to a natural outlet, and the tax should be determined on the basis of benefits derived and the value of the land, it was decided at a meeting of the Red River valley improvement and drainage association.

A resolution to this effect was passed

after a lengthy discussion on the report of the drainage commission presented by J. G. Sullivan.

Mr. Sullivan pointed out that some were paying taxes out of proportion to the benefits derived from drainage, that both the Dominion and provincial government lands benefited did not bear their share of the cost of drainage, and that the proportion of municipalities outside the drainage district received a benefit from the construction of roads connected with ditches for which they did not pay.

"The people of Manitoba municipalities are suffering from inefficient drainage. In drainage district No. 2, comprising 441,017 acres, large areas are hooded every year and millions of dollars damages is done to crops," Mr. Sullivan said.

FILTERED WATER BASIN ADVOCATED IN CHATHAM

Chatham, Ont.—Ex-Mayor W. A. Hammond was elected the chairman of the Water Board at the first meeting for the year. Ex-Mayor Westman, former chairman who was re-elected to the board this year, announced that he would continue to advocate Lake Erie water for Chatham. In a lengthy report upon the work done in extending and improving the present waterworks

plant, City Engineer Fuller reported that the average cost of pumping a thousand gallons of water during the past year was 11.1 cents. The engineer also suggested that in order to improve the work of chlorinating the water, a filtered water basin would have to be erected and he advocated the immediate construction of it.

1921 MAY BEAT BUILDING RECORDS

Toronto.—City Architect Price looks forward to 1921 being the biggest building year in the history of the city.

"I am informed by an architect," he said to-day, "that there is \$35,000,000 of work in sight."

The largest building year was 1912 when the permits issued totalled \$27,401,761. Next came 1911, with \$24,374,539, and then 1913 with \$27,038,624. There was a drop to \$20,694,288 in 1914. During the past five years the permits issued represented the following value: 1915, \$6,651,889; 1916, \$9,381,671; 1917, \$7,163,556; 1918, \$8,535,331; 1919, \$19,819,436.

FILTRATION PLANT IN PETERBORO

Peterboro, Ont.—The council has passed a by-law authorizing the borrowing of \$350,000 to be used in the purchase of a site and the erection of a filtration plant.

Toronto, Ont.—A Bldg. Committee is being formed to deal with erection of Church and Sunday School for St. Monica's Anglican Church congregation. Rev. Robert Gay, pastor, 88 Prust St.

NEW CANADIAN PATENTS

(Continued from page 22)

ondary combustion chamber, a smoke chamber overlying the secondary combustion chamber and the central water chamber of the top section, a water chamber overlying the entire smoke chamber and communicating with the outer water chamber of the intermediate section, two water conduits leading from the central water chamber of the intermediate section and extending through the secondary combustion chamber and the outer water chamber of said intermediate section, water pipes connecting one of said water conduits to the outer water chamber of the fire pot section and connecting the other of said conduits to the outer water chamber of the top section, other water pipes connecting the outer water chamber of the intermediate section to the outer water chambers in the fire pot and top sections, communicating water passageways between the central and outer water chambers of the top section, and a horizontal smoke outlet leading from the smoke chamber, said water pipes being provided with unions for separably connecting the fire pot and intermediate and top sections and holding the same in assembled relation.

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Recessed drainage fittings. Standard and extra heavy flanged fittings and flanges. Galvanizing malleable and gray iron castings of all kinds.

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“A voice roared out, hoarse, profane;--the Mate's voice: ‘Thought you'd try it again, did you, you dashed beach-comber. I'll teach you, and when I find the dog that left that rope for you I'll give him a leaf out of the same book. You bloody waster! I'll teach you! I'll—!’”

This is an extract from Frank Packard's "Pawned," which commences in the February 15th issue of MACLEAN'S MAGAZINE.

At the period in the story that this is written the leading character is a

beach-comber in the South Sea Islands.

Three months later, John Bruce is stretched at full length on a luxurious divan in the most sumptuous apartment of the Bayne-Miloy, New York's newest and most pretentious hostelry.

How had this wonderful metamorphosis been made? It is a mystifying, enthralling, intriguing story, the secret of which you can only get by reading every instalment of Frank Packard's wonderful yarn.

OTHER UNUSUAL FEATURES

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By Charles Christopher Jenkins.

This tells the story of the conquering of the snow-drift problems by the railways of Canada.

“The Drama of Our Great Forests”

By Arthur Heming.

“Meeting of the Wild Men,” filled to the brim and overflowing with forest-lore.

“Solons of the 80's”

By Col. Geo. H. Ham.

Some episodes of the 80's and 90's when he and his confreres were recording Canada's political history.

“Soldiers' Settlements Making Good”

By Agnes C. Laut.

The wonderful success which has met the work of the Soldiers' Settlement Board in the West.

“The Cross in the Sky”

By R. T. M. Scott.

A psychic story; simply, forcefully told, and tinged with war atmosphere.

“The Queer Toff in Number 13”

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A human story of a brilliant man who almost “pegged out” until a wonderful love drew him back.

“The City of Peril”

By Arthur Stringer.

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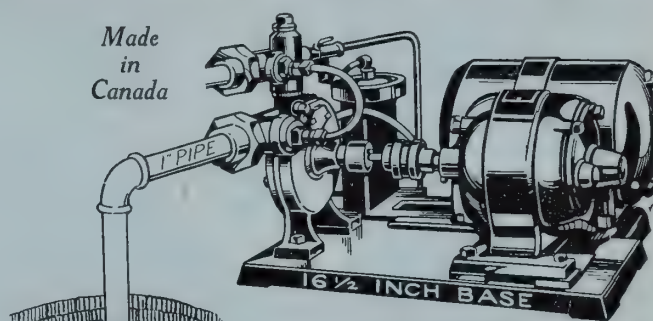
Farmers everywhere are demanding a reliable, compact water system such as the Westco. In addition to this huge field of farmer prospects there are the suburban and outlying districts of cities and towns where the hand pump and well are still being used.

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- (c) Inexpensive to buy, install and run.
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- (e) Has no gear, no belt, no valve.
- (f) Has only one moving part, and is self-lubricating.

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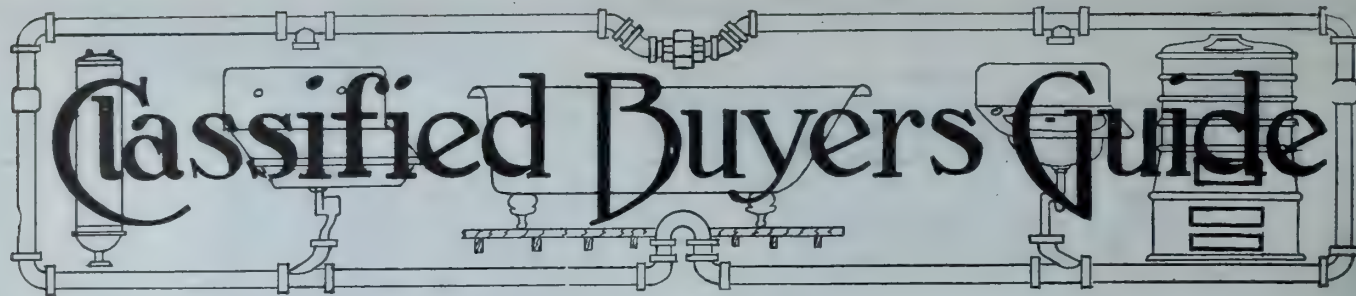


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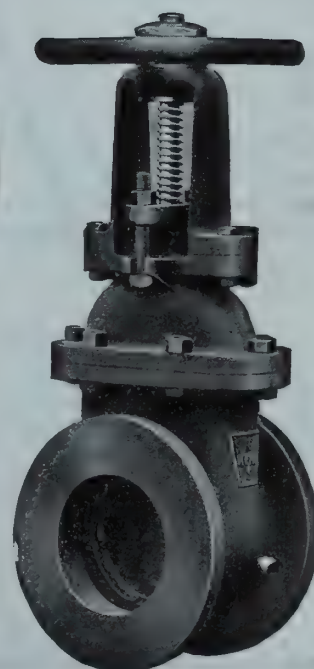
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The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS

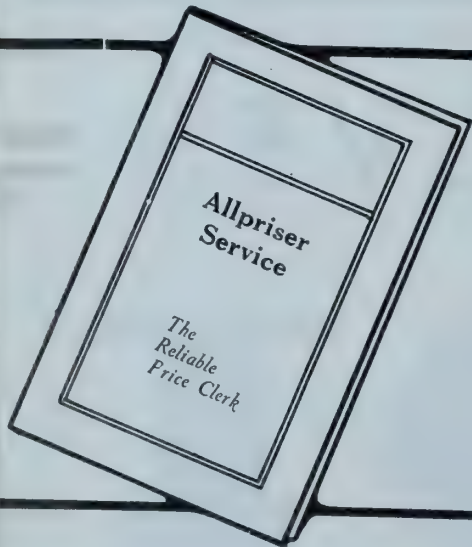
The Burnett-Larsh Mfg. Co., Dayton, Ohio.
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WASHING MACHINES

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J. H. Williams & Co., Brooklyn, N.Y.

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Allpriser Service consists of a flexible, leather bound book 7 by 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest change. Write to-day for more details.

Here It Is!

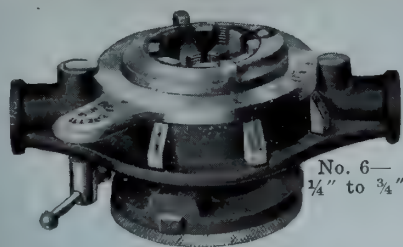
Allpriser—The Price Clerk

Selling a 9 cent article for 7 cents is a costly game, and would amount to quite a sum of money in a year's business. The way to cure losses through wrong quotations is to remove the cause, namely, to insure, and successfully regulate your buying and selling with Allpriser—the reliable price clerk. Write at once for sample sheets and interesting literature.

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4 Irwin Ave.

TORONTO



No. 6—
1/4" to 3/4"

For small pipe sizes this compact, convenient little tool should be a part of your equipment. It will soon pay for itself in its saving of time and the accuracy of its work.

BORDEN-CANADIAN CO.

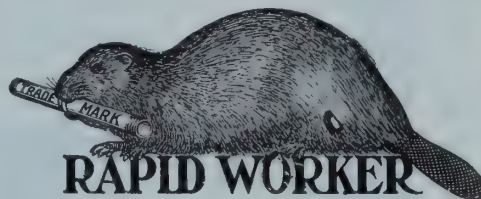
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Toronto

No. 6 Beaverette

Think of it—four pipe sizes: 1/4, 3/8, 1/2 and 3/4 in. threaded by one die stock, without changing dies! The Beaverette No. 6 is the only single die stock manufactured that can do this. Two sets of dies operated by the same control plate take care of the difference in thread pitch.

There are no dies to change, no loose bushings or other parts to bother with. Simply set the dial plate to the size desired and the handy, adjustable Beaverette No. 6 is ready to thread.



Galvanized and Black Sheet Canada Plate

BRASS AND COPPER TUBES, RODS, SHEETS

Lists on Request. Shipments from Toronto Stock.

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PHONE PARKDALE 5200 TORONTO

Over 60,000 Daisy Hot Water Boilers Now in Use—Are You Selling Your Share?



Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

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It Pays to Read the Advertisements

THE MAIN thing an advertiser wants to do is to tell you plainly just how and why his goods are worthy of your consideration. You can learn a great deal from that alone, because many things you see advertised are the things you buy and use in your regular daily life. By reading the advertisements you can become familiar with the names and read descriptions of the things that are best and most satisfactory.

HOYT

WIPING SOLDER
Lead Traps and Bends Sheet Lead and Calking Lead
HOYT METAL COMPANY
 MONTREAL TORONTO WINNIPEG



\$300.00 A MONTH

That's what I am now making, after my firm took me in as a co-partner, owing to my Special Training I got with you, writes a former student.

We can INCREASE your wages, too, if you will first invest in personal preparation. With the prevailing high wages there is more and more expected from the average common TINNER.

A special training in our Wonderful courses will insure you for all future time against a cut in wages.

Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

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Williams' Improved "Vulcan"

is the *only* chain
pipe wrench made
with proof-tested,
certified chain.

At Your Dealer's

J. H. Williams & Co.
LIMITED

"The Wrench People"

*Formerly Canadian Division of
The Whitman and Barnes Mfg. Co.*

77 Thorold Road, ST. CATHARINES, Ontario

WOLVERINE TAP PLUGS

**BOILER REPAIR SETS
REFRIGERATOR DRAIN TRAPS**

are good stock for every Sanitary Engineer



Fig. 3270



Fig. 3612



Fig. 3260

Wolverine Bibb Washers and other
quality rubber goods give satisfaction.

Better order to-day

WOLVERINE
LIMITED

76 NELSON ST.

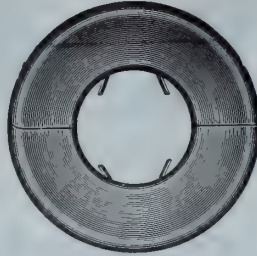
TORONTO



OPEN VIEW
NO. 10-A

The
CEILING
PLATE

that's
better



TOP VIEW
NO. 10-A

THE NO. 10-A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES $\frac{3}{4}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



Gem No. 4.



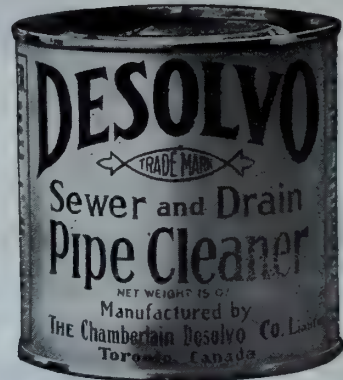
Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.



Makes Satisfied Customers

Desolvo is the only pipe cleaning compound which mixes readily with cold water.

Desolvo will do work quicker and with less effort and expense than any other method.

Desolvo is on sale everywhere and is very easy to carry around.

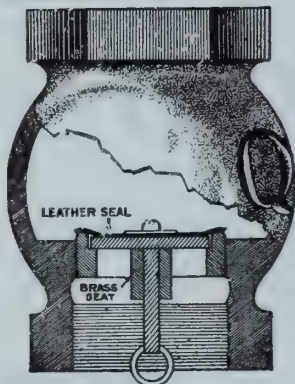
At Your Jobbers

Chamberlain Desolvo Co., Ltd.

109 Church Street, Toronto

General Offices: Pittsburg, Pa.

Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St., Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont. Western Canada Representatives: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.



This is a
"Q"
Foot Valve

And it Just **CAN'T** Leak

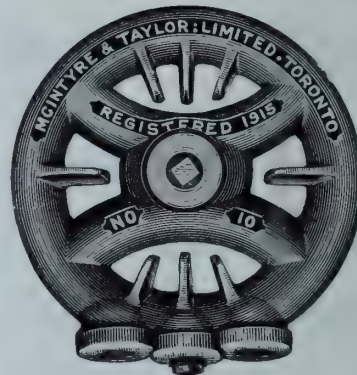
There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that **JUST CAN'T LEAK.**

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
GALT, CANADA



**M. & T.
Coils**

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mentioned
below :

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Standard Sanitary Mfg. Co. Limited.
Steel & Radiation, Limited.
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156 Lombard St.

INDEX TO ADVERTISERS

Allison, K. B.	42
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Bastian Morley, Ltd.	47
Beaton & Cadwell	46
Borden Can. Co., Ltd.	43
Canadian Veneering Co.	6
Canadian John Wood Mfg. Co., Ltd.	8
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products Co.	48
Chamberlain Desolvo Co.	46
Cunningham & Co., W. H.	41
Dominion Sheet Metal Corp., Ltd.	1
Empire Manufacturing Co.	Outside front cover
Fittings, Ltd.	48
Galt Brass Co.	Back cover
Greenfield Tap & Die Corp.	7
Hause Mfg. Co., Chas. F.	48
Hoyt Metal Co.	45
International Malleable Iron Co.	37
Jardine & Co., A. B.	8
Kerr Eng. Co., Ltd.	41
Lord & Burnham Co., Ltd., of Canada..	12
Marks & Co.	48
McDougall & Co., R.	46
McIntyre & Taylor, Ltd.	46
Ministry of Munitions	3
Morrison Brass Mfg. Co., Ltd., Jas.	31
Mueller Mfg. Co.	35
Ontario Metal Products	43
Port Hope Sanitary Mfg. Co.	24-25
Spence Heater Co.	5
St. Louis Technical Institute	45
Standard Sanitary Mfg. Co.	9
Steel & Radiation, Limited	6
Sturtevant Co. of Canada, Ltd., B. F.	4
Toronto Hardware Mfg. Co.	48
Warden-King, Limited	43
Westco Pumps, Ltd.	31
Williams & Co., J. H.	45
Wolverine, Ltd.	45



Send for these folders, today!

Clip the coupon below and let us send you these two beautiful illustrated folders. They cost you nothing but will give you a world of information—a big help in solving your heater problems.

THE
Royal
automatic

The folder on the left tells how 25 to 40 gallons of steaming hot water can be automatically maintained in the home, ready for instant delivery at all connected faucets, by a tiny gas flame no bigger than the blaze of a match. No fuss. No muss. No complications. A simple and profitable installation that any plumber can easily understand.

The other folder describes our Marvel Non-Automatic, a combined range boiler and gas water heater that takes the place of the old "sore thumb" or side-arm contraption. The Marvel is the most economical non-automatic gas water heater made and gives absolute satisfaction.

Know these facts. They are important in your business. Clip the coupon now.

BASTIAN-MORLEY LIMITED

Hanson St. and Hillingdon Ave.
TORONTO, CANADA

Makers of Gas Water Heaters Exclusively

Send This Coupon!

Bastian-Morley Limited, Toronto.

Gentlemen:—Please send me illustrated folder describing your "Royal" Automatic and "Marvel" Non-Automatic Gas Water Heaters. Also send price list and give name of nearest jobber.

Name

Address

Town Province

(Tear Out This Coupon—Send It Today)





WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{2}$ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

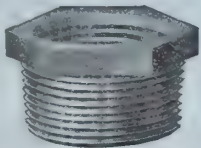
Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal



Fittings Limited



Trade Mark



Registered

*Manufacturers of
Malleable and Cast
Iron Pipe Fittings*

Oshawa

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers

Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.

Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

FOR SALE—FLANGED AND FACED FITTINGS from $2\frac{1}{2}$ in. to 8 in.; elbows, tees, cross tees, reducing tees and reducing elbows. At a very low price. American Plumbing Supplies, 14 Craig St. W., Montreal.

FOR SALE — CONTENTS OF WORKSHOP, full set of tinsmith's tools and machines, plumber's tools, 8 ft. brake, cornice maker's slitting shears, etc., almost new. Motor truck, ladders, etc. McClary Furnace agency. Good trade in plumbing and heating. First-class opening for live wire. Owner going into another line of business owing to ill-health. H. T. Andrews, Orillia, Ont.

YOU ARE RESPECTFULLY REQUESTED TO SPECIFY

RIVETED RANGE BOILERS

and

CAST IRON SOIL PIPE AND FITTINGS

Manufactured by

TORONTO HARDWARE MFG. CO., LIMITED

THE CLIMATE OF SASKATCHEWAN

IS THE SEVEREST TEST A SEWAGE DISPOSAL
SYSTEM CAN BE PUT TO.

READ THESE LETTERS

PERFECTLY SATISFIED.

COPY. Stalwart, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Gentlemen:

I am perfectly satisfied with your system of sewage disposal.
See no room for improvement; no trouble at all.
Certainly a boon for the farmer, and all.

Yours very truly,
(Signed) W. H. ETTER.

ENTHUSIASM

COPY. Box 45, Imperial, Sask., Nov., 1919.
Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

Re your letter of November 19th, 1919, regarding the Septic Tank to take care of my sewage disposal.

Well, I may say that it has been very satisfactory in every way.

It is two years last August since it was completed, and I have never had any reason to even open the man-holes. So you see it must be working perfectly, and as to freezing, it has not frozen as yet.

As far as I know there are no objectionable features about the system, and I am in every way well satisfied with the system.

There is no system that could work better.

I cover up the filter bed and the pipe between it and the septic tank, also the septic tank, with chaffy straw about 6 or 8 inches deep in the Fall, so the snow and straw keep the frost out.

Perhaps it don't need it, but I like to take no chances.

I remain, yours truly,
(Signed) WM. J. SHAW.

WORKING FINE.

COPY. Kenaston, Sask., Nov. 25th, 1919.
Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In regard to my septic tank, I can highly recommend it, as it has been working fine ever since I have had the plant put in. It has never frozen nor has it refused to work.

I must say that the system has given every satisfaction.

Wishing you every success.

I am, yours very truly,
(Signed) HUGO TIETJENS.

HAS NEVER TOUCHED IT SINCE INSTALLING.

COPY. Imperial, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

The system I have has been working satisfactory.

I have had nothing done to it since it was installed, and everything is in perfect order as near as I can see, in fact I have never given the system a thought.

(Signed) O. D. JOHNSON.

SATISFACTION AND THEN SOME.

COPY. Duval, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

The sewage disposal system is giving good satisfaction.

So far I have had no trouble with it. So far I am well pleased with it.

(Signed) JOHN MCKENZIE.

COULDN'T IMPROVE ON THE ANTHES SYSTEM.

COPY. Nokomis, Sask., November, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

I have answered the following questions.

So far I haven't had one particle of trouble.

I haven't anything to suggest.

(Signed) G. H. HUMMEL.

Is the system giving every satisfaction? Yes.

Does the syphon valve work perfectly? Yes, so far.

Have you had any trouble with freezing? No.

Are there any objectionable features about the system? Not any that I have found.

QUITE SURE IT'S ALL RIGHT

COPY. Hawarden, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In reply to your request, would say that we have found the septic tank very satisfactory, but we didn't lay enough of field tile to take care of seepage, as the sub-soil is very hard, and we were putting a lot of water through the system.

The syphon seems to do the work alright.

We had the main line freeze up coming near Spring, just in one place, about 6 feet of the main line where it runs close to my garage, and there was no snow lodged on that particular place.

I think the trenches should be covered with about 6 inches of horse manure in the Fall, so as to catch the snow, and there should be no danger of frost.

Hoping these few lines will be of some benefit to you.

I remain, yours truly,
(Signed) WEBSTER MOONEY.

PUT IT IN LATE IN THE SEASON, BUT

COPY. Cotton Woods, Nov. 28th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In answer to yours I might just say that so far the Septic Tank system of sewerage is a success.

I have not as yet found any deficiency in either construction or operation.

We have used the system for about six weeks, beginning just one week before freeze-up. It did not even get a fair chance, but as yet it has withstood the frost, being covered to the depth of six inches with clay earth. I spread strawy fresh horse manure over the disposal bed to a depth of one foot, and everything is working well so far.

I would highly recommend this system of sewage disposal to every farmer.

Sincerely yours, W. THOMPSON.

HASN'T FROZEN YET—AND NEVER WILL.

COPY. Abernethy, Sask., Nov. 26th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In reply to yours of the 25th inst., I might say that regarding my septic tank installed last June, I have had absolutely no fault to find with either the material used or the workmanship, as it has thus far given perfect satisfaction in every way.

As far as I know, the syphon valve is working perfectly, as it has never given any trouble.

It has never frozen so far, but we have covered the septic tank and disposal field with about 1½ to 2 feet of horse manure, as I wish to give it every possible chance.

I have no fault to find, or suggestions to make to improve this system.

I am, yours truly,
(Signed) WM. FOSTER.

ANTHES FOUNDRY, LIMITED

TORONTO

WINNIPEG

VITRO

NOTROUBLE
TANK

For Your Satisfaction Insist on Vitro

ONE item in the long list of Vitro superiorities is the special, non-porous composition from which Vitro Tanks are so carefully molded.

An important item, it is true, but not the *sole* reason why Vitro has earned the title "No Trouble Tank."

The people and the plumbers of Canada know that their satisfaction and profit have depended on the selection of the Vitro Tank. They *should* know that the name Vitro implies a *complete tank*, fittings included, that years of experience have perfected.

It is this complete Vitro Tank that has made thousands of dollars for Canadian plumbers in the past, and it is this complete Vitro Tank that must continue to do so in the future.

There is only one Vitro Tank. It is made from start to finish to eliminate trouble. And it is made exclusively in Canada by

**Galt Brass Company
Limited**

Galt

Canada



VITRO
MAHOGANY
COMBINATION

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, MARCH 1, 1921

No. 5



A-2231

EMPIRE Cleanout Plug

This plug is designed to give easy access to the sewer and is suitable for test plug. It is also made for iron pipe thread connections. Five sizes, 2", 3", 4", 5" and 6".

*"If it's an EMPIRE product
you know it's right"*

When you see the word EMPIRE think at once of highest quality Sanitary Fixtures and Plumbing Supplies. We make and handle everything you need, and leading jobbers everywhere handle EMPIRE goods. Write us of the material you require.

Empire Brass Mfg. Co., Limited

LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:

E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS

No. 300

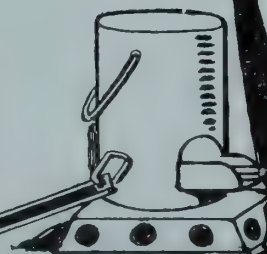
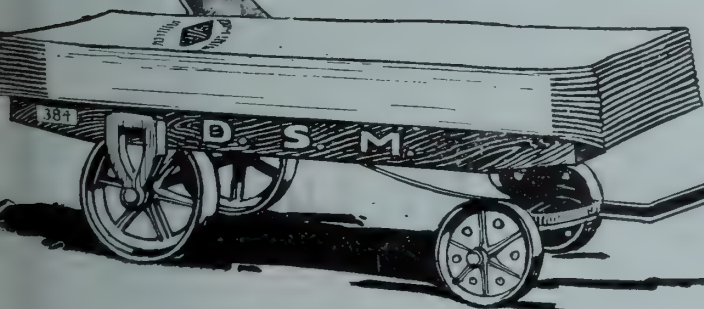
Import Shipments Galvanized Sheets

Now comes the time when the air will be full of the advantages of buying cheap import sheets.

Do you know of anyone who imported Galvanized Sheets in the latter half of 1920 who made money out of it? If they all lost money in 1920 on such business, how on earth can anyone expect to do better in such times as are ahead of us.

The safe way is to use our big stock of Premier Galvanized Sheets as you need them. The price is right—and think of the service.

TINKER TOM



THOUSANDS

PLAIN
TALK TO THE
PLUMBING TRADE

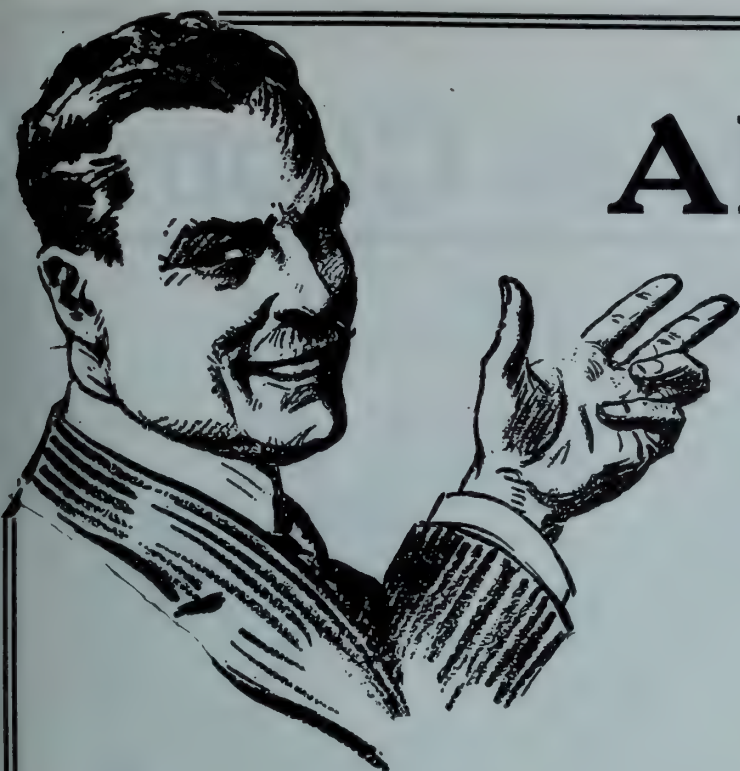
of plumbers are in the same position as they were five years ago. Some always will be, while those who specialize on using first quality fittings combined with good service succeed.

A hardware merchant carries all the staple lines he can stock. He has a window display, and in this way encourages the public to buy. Why not the plumber? Very few have an attractive shop.

Why not set up a few Closet Combinations and have a complete assortment of Brass Goods to enable an intending purchaser to pick the articles he fancies? Telling him a certain fitting is what he wants, even if you do instal it, will not make him a satisfied customer.

B. O. T. Water Closet Outfits and Cee Bee Brass Goods are of first quality and good appearance. For durability they have no equal and have stood the test.

CANADIAN BRASS COMPANY, LIMITED
GALT - - - TORONTO



Allpriser

The Reliable Price Clerk

Puts Money in the Bank

How much of your profit is eaten away yearly by losses through wrong quotations?

Plumbers—Do You Know This?

Do you know your yearly losses through mis-quoted prices?

Do you know how large a hole is made in your profits by selling an article under cost price?

Do you know the remedy?

Allpriser — the reliable price clerk—is practical business insurance that prevents losses and

keeps your profits intact. It eliminates guesswork, and puts money in the bank by keeping you supplied with the correct prices in your buying and selling.

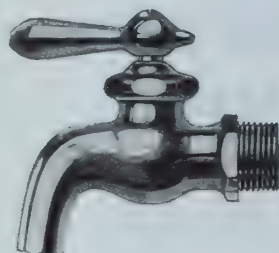
Allpriser is the remedy for a damaged bank account, and is well worth your investigation. Write to-day for literature and sample sheets.

Allpriser Service consists of a flexible, leather bound book 7 in. x 9 in., of 150 loose-leaf pages. The service includes a list of net prices of all staple articles, and a regular service of new sheets revised to the latest changes.

Kenneth B. Allison

4 Irwin Avenue
Toronto

NORMAL BRASS GOODS



A200

We hear much of "Getting back to normal." As makers of a wide variety of Brass Goods throughout an extended period of years, we long since arrived at NORMAL in quality and workmanship.

With standards of production fixed and established, uniformity in process and operation, precision and thoroughness an organization habit, a natural result is an output of dependable HIGH quality materials, subjected to rigid tests, and that may be installed with confidence and satisfaction.

A trial proves it



No. 1063



A3500



No. 3955



No. 3571



No. 58

THE WALLACEBURG BRASS & IRON MFG. CO., LIMITED

WALLACEBURG, ONT.

Toronto:

Mr. L. N. Vanstone, 10 Wellington St. E.
Telephone Main 2355

Winnipeg:

Moncrieff & Endress, Ltd., Galt Bldg.
Telephone Garry 3389

Montreal:

J. R. Devereux & Co., 358 Beaver Hall Square
Telephone Uptown 4441

A collection of 15 black and white illustrations of various objects, including a steam locomotive, a crane, a stack of lumber, a bridge, a ship, a steam engine, a boot, a hat, a lathe, a small locomotive, a cart with bottles, a top hat, and railroad tracks.

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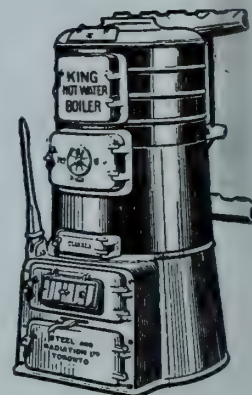
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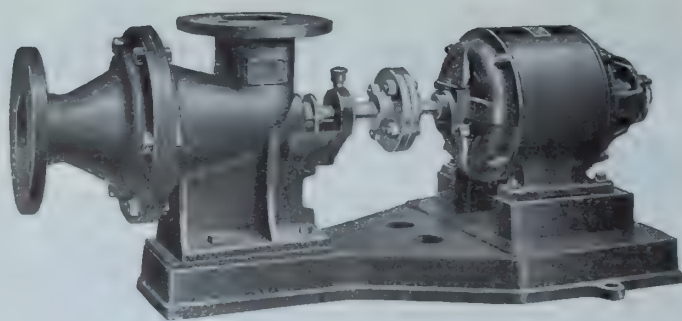
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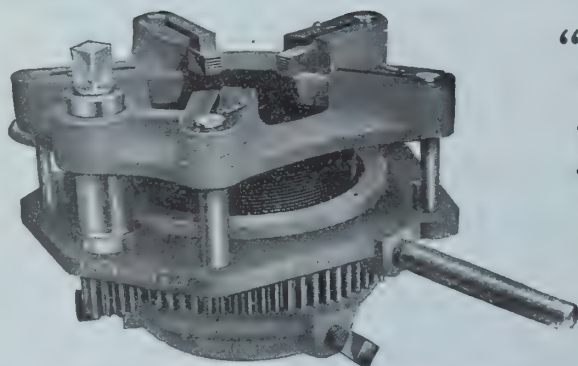
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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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TORONTO, MARCH 1, 1921

No. 5

CONTENTS

Convention of Ontario Plumbing Inspectors	13
Relation of Plumbing to Public Health	14
Smoke Testing Plumbing Installation	15
Suggest Town Planning Scheme	16
Combination Heating Systems	17
New Plumbing Goods	18
Practical Sheet Metal Work	19
Editorial Comment	20
Sewage Disposal For Small Communities	21
News From Here and There	22
Tenders Wanted, Contracts Awarded, Etc.	26
New Canadian Patents	28
Systematizing the Plumber's Office	29
Current Market Quotations—Montreal, Toronto, Winnipeg	30-36

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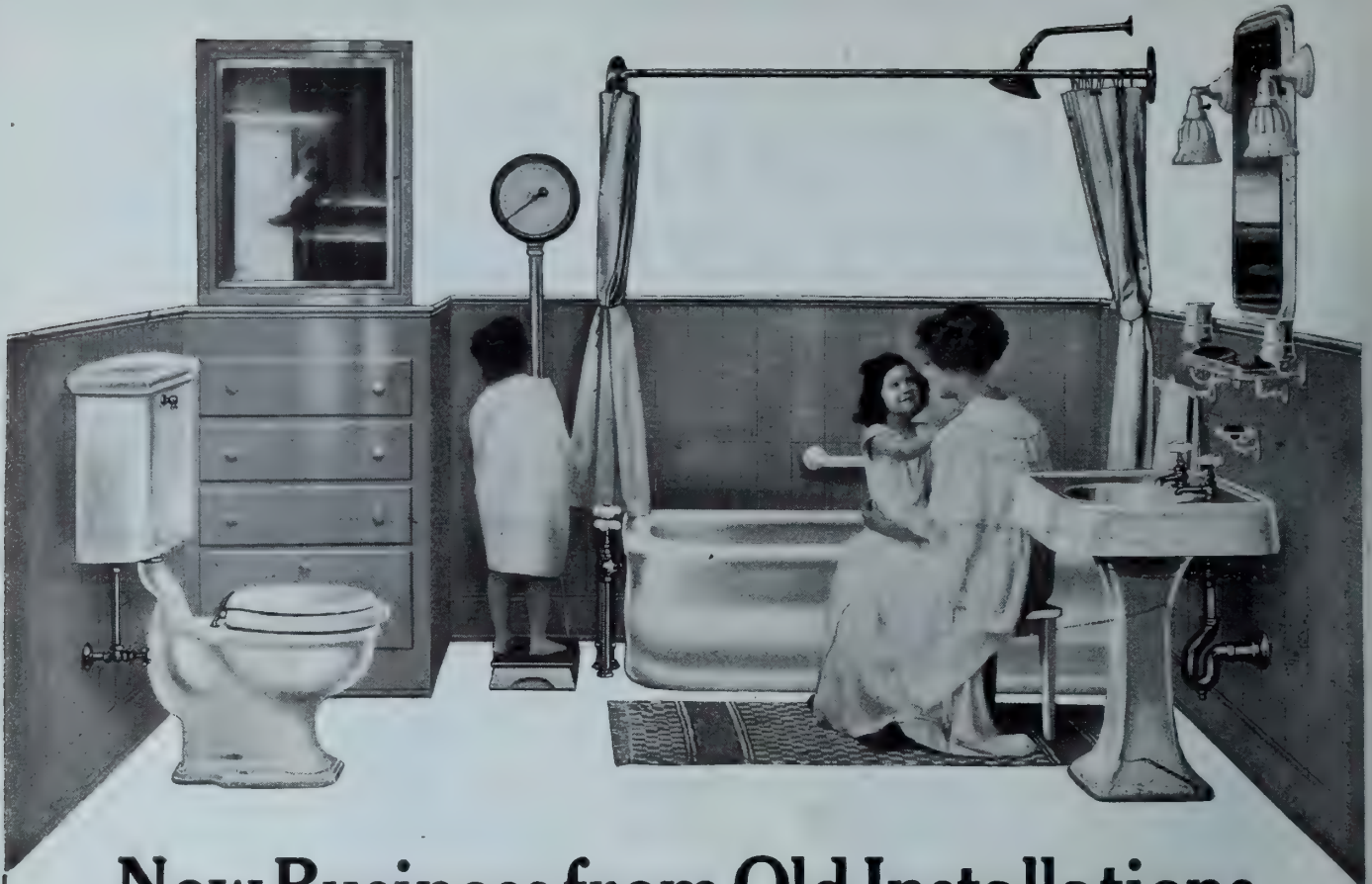
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Volume XV.

TORONTO, MARCH 1, 1921

No. 5

Convention of Ontario Plumbing Inspectors

First Annual Gathering is Productive of Instructive Discussion
on Plumbing and Drainage Matters—Importance of Sanitation
in View of Modern Developments Emphasized—Entertained by
Plumbers' Club of Brantford

THE annual meeting of the Association of Plumbing and Drain Inspectors of Ontario, which has just been concluded at Brantford, Ont., was productive of much discussion along a number of lines of interest to plumbers as a class. The following cities were represented: Brantford, Hamilton, London, St. Catharines, Niagara Falls, Toronto, Oshawa, Peterboro and Ottawa.

presented an address to the visiting delegates, in which they expressed their pleasure and pride in not only having Brantford chosen as the first city to hold the annual meeting, but that the first president of the association was a Brantford man. The opinion was expressed that much good could come from the exchange of thought among the various inspectors gathered. Suitable words of appreciation were offered in reply by the secretary of the association. The banquet was followed with an auto ride around the city and a visit to many places of interest.

Many Plumbers Got Start in Brantford

At the first business session of the convention President G. W. Broomfield gave an interesting and instructive address in which he touched upon the historic nature of the city of Brantford and the objects of the meeting. He stated that the convention was being held upon the scene of one of the most ancient bathing places on the continent. The early Greeks and Romans had shown great concern for public health and had provided bathing accommodation, but it was optional whether or not bathing became the order of the day. Here it was different. In the old days everyone who passed from east to west had to take a bath here, and whether it was a knee, hip or plunge bath, depended on the depth of the river at the time. That the baths at that time were popular was easily seen from the fact that it now required four bridges to provide for the traffic from east to west. He declared that the inspectors were now upon holy ground. At the time when Moses led the children of Israel from Egypt he led twelve tribes, and when Chief Thayendanega came to this promised land he brought with him six tribes.

The plumbing history of the city was easily seen from the men prominent in plumbing circles who had had their original training in this city. He named

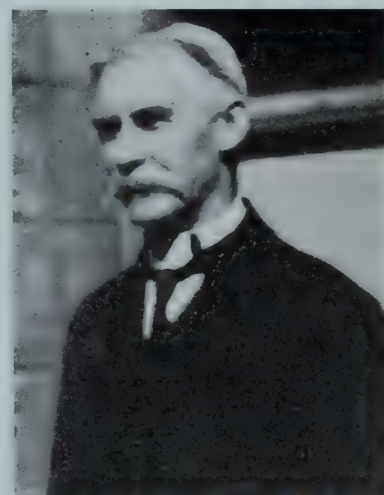
J. Hewel, superintendent of plumbing at the Toronto Exhibition; J. T. Rich, of Noble and Rich Co., London; Lewis Dobbin, of Peterborough; J. Palmer, of Hamilton. All of these men had spent their early days learning the plumbing trade in Brantford, so that this city had had its famous men in this connection.

The first plumber here was Robt. Russell, a Scotchman, who came to this country with a party of his countrymen and settled near Toronto. From there



GEORGE BROOMFIELD

Brantford, Ont., re-elected president of the Association of Plumbing and Drainage Inspectors of Ontario at the first annual convention in Brantford.



W. H. MEADOWS

Toronto, re-elected secretary of the Association of Plumbing and Drainage Inspectors of Ontario at the first annual convention in Brantford.

he had come to Brantford and his coming here was the occasion of the opening of the first plumbing shop. He had been visited by delegates from all parts of the province, who came to see the Brantford plumbing shop and Brantford became the centre of the plumbing trade.

Committees' Reports Are Encouraging

Some general business matters were proceeded with and the various com-

Continued on Page 14.

Letters of regret at inability to be present were read from several members.

The social side of affairs was well attended to, the association, together with a number of master plumbers, being tendered a banquet by the city council, at which a number of addresses were delivered. The Plumbers' Club, of Brantford, through their president, W. L. Armour, and secretary, H. E. White,

Relation of Plumbing to Public Health

Sanitation and Hygiene Must Go Together in Improving Health Conditions—Closer Relation of Cities and Nations and Congestion of Modern Times Provides Big Problem—Sanitary Instruction More Necessary Than Legislation

By Dr. W. L. Hutton, M.H.O., Brantford, before Convention

THE relation of plumbing to public health and the vital factor that it constitutes in the making of provision for good health among citizens generally was the subject of a paper read at the convention of the Association of Plumbing and Drain Inspectors of Ontario by Dr. W. L. Hutton, medical officer of health, Brantford. The history of words such as sanatorium, hygiene and plumber were traced back to early historical times by Dr. Hutton pointing out that sanitation and hygiene go hand in hand, that they have one science in common and that these must work together for the health of mankind. It was pointed out that modern facilities for travel bringing cities and nations into closer touch have speeded up the transmission of disease.

Reference was made to early developments along the line of improved sanitary conditions, mention being made of the Public Health Act of 1848 in England. Dr. Hutton pointed out that the central idea of those days was that the condition of animal and vegetable matter gave rise to poisonous gases or to living germs, which were then distributed by the air. The aims of these early workers were clean streets and yards, clean houses, the building of sewers, construction of water closets.

Many Early Theories Were Wrong

"We owe to the efforts of the early English sanatoriums the cleaner streets which we have to-day, our good plumbing, our plentiful supply of good water, which, after use, is carried away by sewers," said Dr. Hutton.

"The plans of the early promoters of public health for civic betterment saved many lives and did much for human comfort and convenience, but we know to-day that many of their early theories were wrong, and as the legacy we have a mass of public misconception which has an unfortunate influence on preventive medicines. What are these false theories? One of them is that disease breeds in filth. Another is that all kinds of filth are dangerous, whereas only the secretions and excretions of the human and animals' bodies are dangerous. Another is the unfortunate theory that infectious diseases are usually air-borne, when they are usually spread by direct contact of person with person.

"The infectious diseases breed in the bodies of men and animals and they do not breed in filth. A great many people and educated ones, too, believe that filth

is a great source of disease. The garbage pail, the manure pile, the cesspool, rubbish, the public dump, are still in the eyes of the public as sources of sickness. I say to this plumbers' convention, don't go out and preach this kind of doctrine, because it is not true. The filth which is dangerous is that which carries the secretions and excretions of the human body, and it was because the early sanitarians removed this kind of dirt from contact with mankind that their successes in disease prevention were attained.

"The invisible dirt upon every common object which goes to the mouth or nose and the dirt of human fingers is the cause of more disease than the garbage dumps and manure piles inexistence.

Ravages of Congestion

"One of the great problems of to-day is how to rebuild the overgrown parts of cities and to repair the ravages wrought by congestion. Housing must continue to be as it has long been, a local and individual problem, for the very basis of family life is a place that one may call his own. To every family a house, to every person a room, is a great ideal for any community, but housing will never rise to a higher level than the people's desire for housing.

"Nothing perhaps has contributed more to the health and comforts of habitations than the introduction of running water with fixtures for its convenient

use, and drainage systems for getting rid of human waste.

"Competent plumbing inspectors are essential to see that such fixtures and conveniences are properly installed and that they are kept in good working order. I am one of those who believe that plumbing inspectors and all sanitary inspectors should receive special instruction in public health at some recognized school or college. It is only by spreading broadcast the truths of disease prevention that we are going to achieve the best results. A fountain will not rise higher than its head and in the long run the sanitary state of a community will be determined by the ideas of the people. Hence the greater need for popular education.

"Sanitary instruction is more important than sanitary legislation, and every plumbing inspector should be an apostle of public health. Preach the gospel that pure water is essential, that human excretions need to be carried away by sewers, but do not preach that disease breeds in filth. Preach the gospel that such diseases as tuberculosis, scarlet fever, smallpox, diphtheria and measles, all breed in the body of human beings and are spread directly, or almost so, from person to person, but do not preach that such diseases lurk in the air ready to pounce upon some unwary victim. If these truths are repeated often enough the public will learn the lesson that it is through persons and by things that most of the infectious diseases are spread."

OFFICERS FOR ENSUING YEAR

Officers elected for the ensuing year at the first annual meeting of the Association of Plumbing and Drain Inspectors of Ontario at Brantford include the following:

President—George Broomfield, Brantford (re-elected).

Vice-President—J. C. Palmer, Oshawa.

Secretary—W. H. Meadows, Toronto.

Treasurer—S. Daughtry, Ottawa.

Executive Committee—B. Kirk, Toronto; J. Bush, Toronto; David Wark, Hamilton; J. Wetherall, Peterborough; C. Young, London; H. C. Webber, Niagara Falls; D. McPherson, St. Catharines.

St. Catharines was chosen as the next meeting place.

CONVENTION OF ONTARIO PLUMBING INSPECTORS

(Continued from page 13)

mittee reports presented showed a very encouraging state of affairs. Even the treasurer's statement showed a good sized balance on the right side of the ledger. Papers were then read by a number of authorities on various subjects as follows:—

W. L. Hutton, M.D., medical officer of health for Brantford, on "Facts and Fallacies of Public Health"; H. Webber, Niagara Falls, on "Points From My Note Book"; Geo. Fitzsimmons, Toronto, on "Smoke Testing"; David S. Wark, Hamilton, on "Troubles in Our Trade"; A. G. Wetherall, Peterboro, on general information. Much interest was displayed by the members in these papers and many questions were asked in the discussion which followed the presentation of each one.

Smoke Testing Plumbing Installations

Would Rather Have Well Constructed System Which Leaked Slightly Than Poorly Constructed and Tight—Tobacco Stems Best Smoke for Testing—Testing High Buildings

Paper prepared by A. Fitzsimmons, Toronto, and read at the annual convention of the Association of Plumbing and Drainage Inspectors at Brantford, Ont.

THE subject of "Smoke Testing" which we will discuss, that is, if my paper will only raise enough vim or points for an argument, is not quite rightly named. I might state right here that the statements made, and opinions expressed, are my own, and not in any way official or an expression of the department's views. In my opinion the proper expression is an "air test, with smoke," using smoke just in the same relation in which you would use a colored water to test a submerged pipe or drain.

Now there may be some here who have never seen a smoke test applied and some who do not appreciate the value of the smoke test and its relation to the completed system of plumbing and drainage. To them I might say, there are two stages of the installation of the plumbing system. One, or the first stage, in which the pipe lines are constructed and tested with water. Supports for the fixtures put in and the pipe lines stayed in position. This stage is called the "roughing in" and is generally carried on before the building has been lathed and plastered.

Second Stage

The second or final stage takes place after the walls and partitions have been plastered and trimmed, floors laid and most of the work put in and the "roughing in" has been covered up. This second stage is known as "finishing." It is to this stage we come, to which the smoke test is vital. It does not matter how strict the inspector on the "roughing in" has been, or how conscientious the plumber has been, there are so many ways in which the almost perfect roughing in can and has been made a source of danger to the future occupants of the house. Sometimes this is occasioned by other trades. The laying of concrete floors and the settling of brick and stone walls have always taken their toll of the tile drains and these conditions are seldom found out without the aid of the smoke test. Another cause of damage to the concealed pipe is the carpenter and his little nail. The marble cutter, seeking a stay for his marble, very often locates a lead vent pipe, and it holds his brass wire and plaster of paris very tight but it does not stop the smoke from flowing out of pipe by any means. Then there have been cases where the builders have wanted an extra floor drain or so, and did not want to bother the plumber, drainer or inspector, so have

just cut an opening into the drain and drained the floor into the main drain direct, without trap or any other means to prevent the sewer air entering the house.

Defective Fixtures

Then there are the fixtures. Occasionally the traps of the closet bowls are defective, and no matter how anxious the plumber is to make a good job, it would be a superman who could tell the defective bowl without a smoke test.

Closely allied to the closet bowl is the rain water trap. Quite often I find them warped and tilted out of position and not holding enough water to provide sufficient seal to hold back the slight pressure the smoke machine exerts. All of the foregoing defects are entirely outside of and beyond the control of the plumber. Of course, the plumber makes an occasional mistake. Sometimes this is an accident. Sometimes wilful and sometimes pure ignorance.

If the joint he has been wiping is moved while still soft, or has not been properly tinned, we say "it was an accident." Or if the rubber gasket used in the closet floor flange connection has slipped partly into the bend you term it ignorance. But when you find vent pipes just slipped one over the other without an attempt made at a connec-

tion and closet floor connections made by flanging the lead over on to the floor without even putty, let alone a brass floor flange, then we must come to the conclusion that it was or is wilful.

On most of the large jobs there are the usual crop of openings (left open) for future use. Now before I go any further I am going to make a statement that should cause at least a slight discussion. "I would much rather have a system of plumbing and drainage designed intelligently, constructed in a workmanlike manner and leaking slightly, than a system poorly designed, poorly constructed and perfectly tight." And I mean this, all through roughing in as well as the finishing.

Finding the Defects

The only way to find the defects noted is to plug the soil pipe openings where they and the vent pipes have passed through the roof or rather after they have passed through the roof, also the fresh air inlet pipe, and apply pressure to the system. Just a little less than the pressure the trap seals will stand. This pressure would undoubtedly indicate upon a gauge if there was a leak. And if the leak was big enough you might hear it blowing. Now if you were to saturate the air inside of the system with, say, ether or an essence like peppermint then you add another sense to help you in your hunt for leaks. But sometimes the nose is out of working order and the alcohol of the ether might keep some of us too long at the first leak found. So we discard chemicals and essences and come back to the old reliable tobacco stems, which add still another sense to aid our ears and our organs of smell. For, though there is a chemical which both gives a powerful odor and a good vapor, which is easily seen, still for all practical purposes and serviceability I think tobacco stems the best element to use.

Whereas in Toronto the main trap and fresh air inlet pipe is used, the work of attaching the apparatus is simplified by connecting it to the fresh air inlet pipe. In places where the main trap is not used (and we have many such in Toronto), the usual way is to attach the machine to one of the stacks on the roof and if there is a clean-out fitting or hand-hole opening in the drain, you insert a rubber bag attached to a rubber tube into the drain, and after pushing or floating it down past any opening or

Continued on Page 16.



J. C. PALMER

Sanitary inspector of Oshawa, Ont., elected vice-president of the Association of Plumbing and Drainage Inspectors of Ontario, at the annual meeting.

Suggest Town-Planning Scheme

John W. Bruce, Organizer Plumbers' and Steamfitters' Union, Outlined Plans of Joint Council of Building Industry

DELEGATES from all parts of the province attended the opening of the first provincial town-planning and housing conference for Ontario, held in Toronto. Official welcomes were extended to them by his Honor the Lieutenant-Governor and Mayor Church, the latter referring to the Harbor Board scheme as an example of what the town-planning movement might achieve. A large and interesting collection of plans and photographs of various schemes which have been proposed or carried into effect in Canada and the United States was on exhibition in one of the corridors and was visited by a large number of visitors throughout the day.

John W. Bruce, organizer Plumbers and Steamfitters' Union, in the course of an address on "Why the Workers Desire Better Homes," gave the details of a comprehensive scheme which has

been prepared by the National Joint Industry, of which he is a member. The scheme has been endorsed by the National Committee of the Building and Construction Industries, and is in line with the ideals of the Trades and Labor Council. The scheme was one which the council felt should be fathered by the Federal Government, who would also be responsible for carrying it into effect. The scheme proposed that a loan should be floated by the Federal Government for \$250,000,000, to be known as "the housing loan," the proceeds to be used entirely for the purposes of housing, provision being made that anyone buying bonds should be able to apply them in part payment when they desired to build. The scheme also provided for the establishment of a Federal Housing Board, to be appointed by the Government, the workers to have full representation on such board.

SMOKE TESTING PLUMBING INSTALLATIONS

(Continued from page 15)

bypass, you inflate it to the size of the pipe it is in. The rubber bag used is usually a football or punch bag bladder. If there is only one stack in the system it is advisable to let the smoke appear at the opening before it is closed up tight.

Where there is not any opening into the drain and not any means of holding the smoke in the system, the only way is to pump against the pressure in the sewer. And sometimes there is quite a pressure.

Testing High Buildings

In testing very high buildings I find it easier to apply the test from the roof. The smoke is heavier than air and I think, fills the system quicker. You also escape the inquisitive mob which gathers and wants to know all about it. Of course, if the department wished to stage a publicity campaign we can always get a crowd in the down town district. Now, sometimes we meet with conditions which are sad and depressing, but on other occasions we meet with some circumstance or other which appears serious at first, but turns out a matter for rejoicing. One can hardly imagine how the fruit trade could become mixed up with the smoke test. It also disclosed a fact which calls for discussion.

In applying a test to a reconstruction job the plumber had the misfortune to drop part of the test plug down the stack. He asked me what to do. In looking over the work we discovered a 4x4 offset just below the roof. It suggested a possible place for the pieces to lodge in and so suggested to the plumber the advisability of getting a ball of some weight and passing it down the soil pipe. Looking round for some object to illustrate the size of the ball to get, I saw a plate of oranges. I picked one up and told him to drop it down the stack. Which he did and, behold, it brought the pieces of the plug with it. That saved the plumber a day's work. It also brought to light something else. That was, a large lump of loam or moss, or what was an accumulation of dust and leaves, which had gathered in the 4x4 offset. I have always thought the objection to an offset in a vent or soil pipe above the highest fixture more or less a fancy. But after finding this obstruction in an offset the second time I have come to the conclusion that the objection is quite correct. From these few remarks you can plainly see just how necessary a test of some kind is to complete the work of the water test in the roughing in. I have confined my remarks as much as possible to new work, the work in which we as inspectors are more often in touch with.

Important Points in Income Tax Law

THE following enumeration of points to be remembered in connection with the amended Income Tax Law in Canada will help merchants to a proper understanding of their responsibility. At the present time when there are so many complications in various forms of taxation it is advisable to have the main points condensed and available for reference, as has been done by the Royal Trust Company, who enumerate the points as follows:—

Tax payable along with return, April 30—at least a fourth. Better pay half, to allow margin for errors, which are heavily penalized.

Form for return must be asked for, not waited for.

Companies and Employers' lists and Fiduciaries' Returns to be in by March 31.

Deferred Instalments due June 30, Aug. 31, Oct. 31.

Tax reckoned on income of calendar year, Jan. 1 to Dec. 31; or on a Company's year ended during that calendar year.

Confiscation of all unreported income, if understatement exceeds 20 per cent.; or half, if from 10 to 20 per cent.

Tax increased 25 per cent. if return is late.

Six months in jail and \$10,000 fine for false statement.

Normal Tax, 4 per cent. on net taxable income up to \$6,000, and 8 per cent. beyond that.

Exempt from Normal Tax only:—
\$2,000 if married or with dependents, of certain categories;
\$1,000 if unmarried, no dependents;
\$200 each for children under 18.

Surtax on incomes beyond \$5,000—rising from 1 per cent. on first \$1,000 to 65 per cent. on all beyond a million.

Five per cent. of both taxes added if taxable income is \$5,000 or more.

Exempt from both Normal and Surtax—

War Disability Pensions;

Tax-free Bond Interest;

Gifts and Bequests;

Life Insurance Proceeds;

Certain incidental gains from turnover of capital assets outside the Taxpayer's regular business.

Expenditure to be deducted when calculating Taxable Income—

General Business Expenses;

Interest on Business Borrowing;

Taxes, Insurance, Repairs, Depreciation, Mortgage Interest—own residence excepted;

Payments for own Superannuation;

Carrying Charges on Securities, not exceeding income therefrom.

Deductions from Tax—

Income Tax paid to United Kingdom or other British Dominion, or to Foreign Countries if they reciprocate;

Certain payments under Business Profits War Tax Act and Special War Revenue Act.

Partners pay—not Partnerships.

Companies pay Normal Tax, not Surtax.

Executors, Guardians and Trustees pay for Beneficiaries unable to manage their own affairs.

Accrued and Undivided Profits are Taxable.

Married Women with Separate Incomes make Separate Returns.

Farmers make Returns on Special Form.

FIRST FLOOR.

the engineer should arrange his heating apparatus so that this room may be quickly heated.

The area of the pipe required for the dining room is 82 square inches, for the bedroom it is 32 square inches.

The area of a 12 in. pipe is 113 square inches, or almost that required by our figures for the dining and bedroom. On account of the short run we might set a 10 in. pipe here, but because this pipe is to serve rooms having a northern exposure we decide to use the 12 in. pipe.

Cold Air Supply

A supply of cold air from out of doors adds nothing to the efficiency of the heating apparatus unless vent ducts are so arranged that there will be an exhaust of air from the building.

If ventilation is not one of the requirements of the owner of the apparatus, it is a certainty that the outer air supply duct will never be used.

The plans before us do not show an air supply from outside. The air will simply be circulated within the building and will return to the furnace casing by way of return faces and ducts set as shown on the drawings.

To determine the area required for the cold air ducts we shall total the combined effective area of the warm air pipes and shall then make our cold air ducts equal to the figures so obtained.

At one time it was considered that the area of the cold air supply pipes should be about three-quarters of the area of those used for warm air. Experience has proved that such a system of proportioning was incorrect, and that the cold air ducts should be equal in area to those provided for the warm air.

In some cases it is well to provide a return face for every room in the building. In other cases a single return face may serve for several rooms.

This plan shows no cold air return face in any of the upper rooms, nor does it show a cold air face in the kitchen. Therefore, we must provide for the return of air by way of a face set in some other room.

One single pipe of the area required for the return of air from the upper rooms and the kitchen would be 18 in. in diameter. Such a pipe would be altogether too large for a single connection to the furnace; so we make the pipe which connects the furnace casing to the return face in the hall a diameter of 14 in. only, and provide an area in the other return pipes sufficient to make up the area deducted from the single 18 inch pipe.

The total area of the cold air returns should be equal to the combined area of the 14 in. pipe and the 12 in. pipes of the other two rooms on the ground floor.

These three return pipes do not provide quite the area required, but as the difference between the actual and required areas is very little, we decide to sacrifice some of the area required.

A face with an area equivalent to that of a 14 in. pipe must have a nominal

NEW PLUMBING GOODS

A NEW BLOW TORCH

The new and improved Double Blunt Needle Torches recently introduced by the Clayton & Lambert Manufacturing Company, Detroit, Michigan, are made in three sizes—two quart, quart, and pint capacity. The two-quart torch, No. 206, herewith illustrated, is of special interest to all those who require a heavy duty torch. The burner is extra large and powerful, the makers claim it produces about three hundred degrees more heat than any other blow torch, and either gasoline or kerosene can be used in operating it. The No.



Double Blunt Needle Torch

206 Torch is recommended by the makers for all kinds of heavy work such as is done in factories, railroad and machine shops and shipyards, and for automobile repair work such as heating and straightening axles and frames and brazing brake rods, etc., and for use outdoors in extremely cold or windy weather, for telephone, telegraph, railway and municipal construction work. Three very important features are said to be combined in the construction and use of the No. 206 Double Blunt Needle Torch, namely, maximum efficiency, minimum cost of operation and nominal expense for upkeep. This is due to the improved double blunt needle construction of the burner, which causes, it is claimed, perfect combustion of the fuel and at the same time prevents the vital parts of the burner from being destroyed by the carelessness of the operator. The lower needle is a shut-off and the upper a cleaner needle which automatically removes any obstruction in the orifice, thus making a clear passage for the gas under all conditions. The burner orifice cannot be enlarged by forcing the needle. Complete information together with a catalog showing the full line of Clayton & Lambert Torches and Fire Pots can be secured by writing the manufacturers at the above address.

area of 229 square inches. This area is more than provided in the 12 in. x 20 in. face shown on the drawing.

It will be noted that the cold air faces are placed in the floor. This is an objectionable feature, because the register boxes of faces placed thus so frequently become dust traps. The greater part of the "dust objection" to warm air heating comes because sweepings are allowed to accumulate in the air ducts. However, here is a case where the use of floor plates may not be well avoided, so we must install the floor registers. The plates can be set so that they may be easily lifted from their borders, and in this way provide some means by which the dust can be removed from the horizontal duct.

The cold air faces are connected to the furnace casing with a horizontal duct formed between the joist by means of galvanized iron joist lining.

Limited Head Room

Whenever it is possible to make sharp downward pitches in the line of the cold air return, this should be provided for; but when, as here, we have a limited head-room, we must be prepared to sacrifice some of the effectiveness of the heating apparatus to the convenience of an increase of head room.

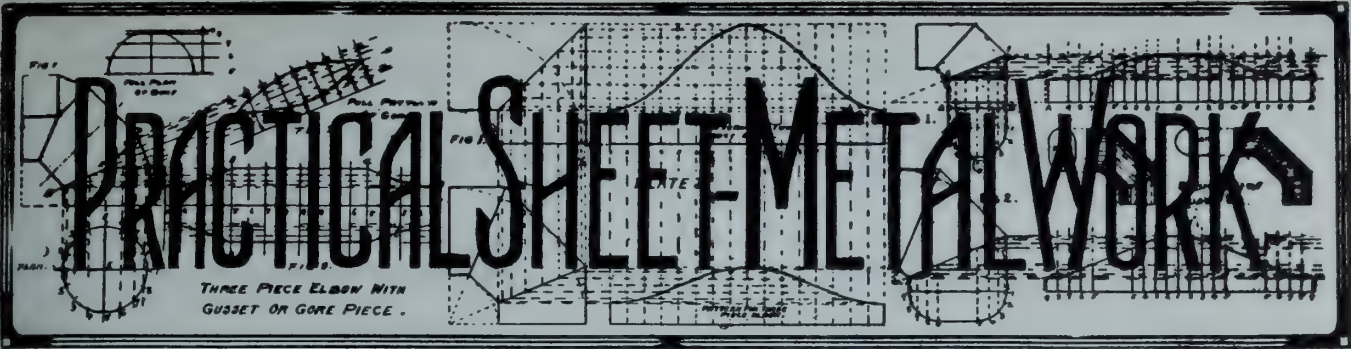
Equal Distribution

The cold air return pipes should be arranged so that they will be equal in their distribution around the casing of the furnace. In many cases such an arrangement cannot be provided, and then it becomes necessary to approximate this arrangement as closely as we may.

The Smoke Pipe

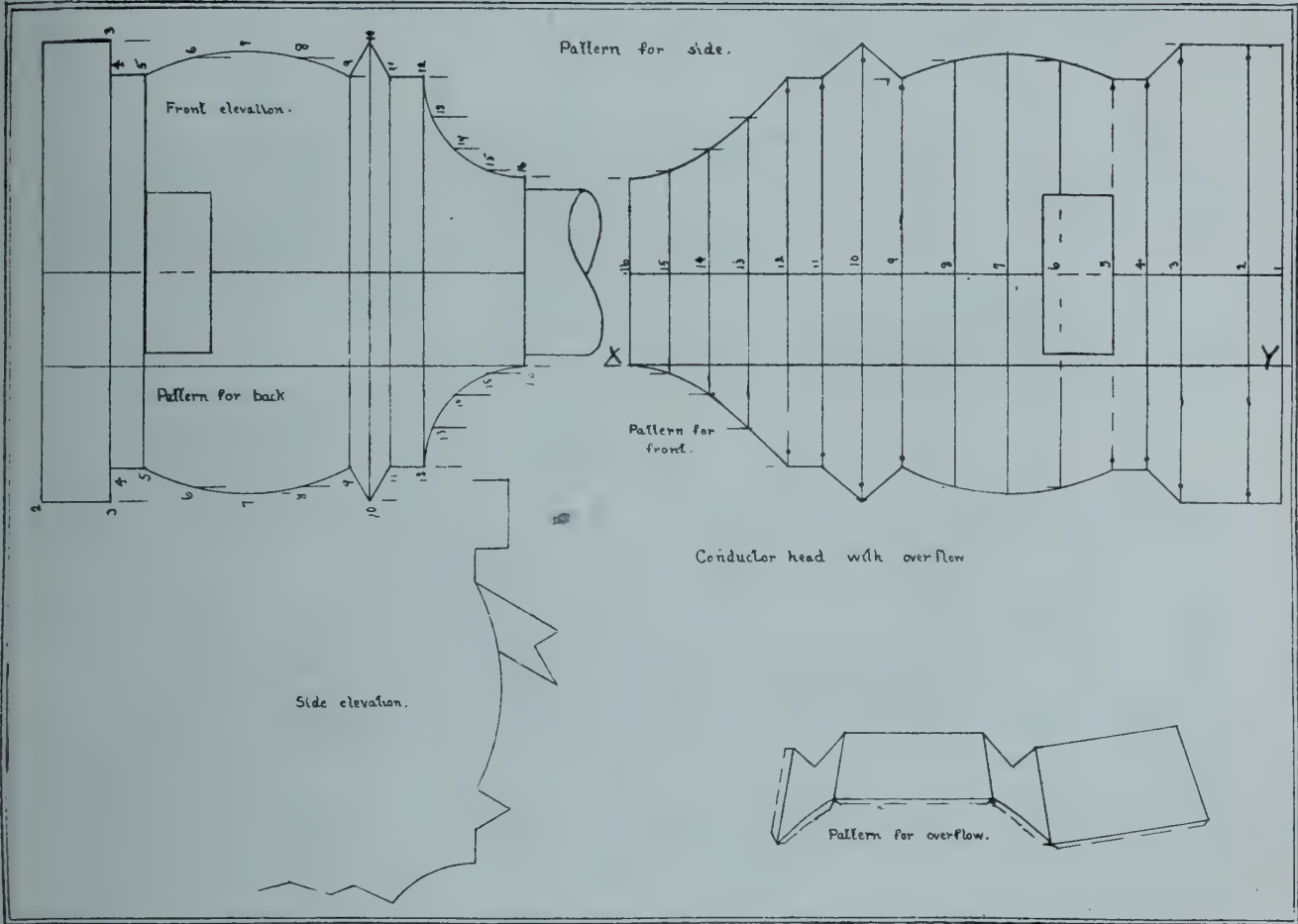
A long run of smoke pipe connected to a warm air furnace is not quite the objectionable thing that it is when connected to a hot water heater. Still, where combination boilers are introduced into the combustion chamber of a furnace having a long run of smoke pipe it is altogether likely that the long run may prove a detriment to the proper operation of the heating plant.

The smoke pipe should be fitted with a butterfly check damper, and also with one of the open type. We wish to state that the intelligent use of the open check damper will effect the saving of much fuel, but at the same time we wish to point to the fact that an open check damper is a rather dangerous thing to use when the furnace is not connected to a good flue, or when the furnace is so small that its gas proof (?) joints have been opened by frequent hard firing.



Pattern for Leader Head

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.



SHOPS that do considerable gutter and spouting work always find it of interest to make leader heads of various designs. We here show a design that is very pleasing to the eye, from an artistic point of view.

It is also serviceable, either as a leader head or just as an ornament.

The front elevation shows the outline, and this is also a pattern for the back of head.

The mitre is treated the same as any ordinary square mitre. Divide all curved lines in equal spaces, number all points and bends as shown.

To set out the pattern, pick the girth spaces as 1-2-3-4-5, etc., and set on a line as 1-2-16.

Draw stretch out lines and from each point in elevation, project lines into stretchout; thereby crossing lines of similar number. This gives the points for drawing the outline of pattern.

The side pattern is produced by merely drawing a line through pattern just beyond the outlet as X-Y.

The overflow is merely a tube made rectangle, cut in at the mouth and planted over the opening as shown in elevation views.

Attention is called to the value of artistic designs from the point of view of business reputation.

There is a big difference between workmanship and craftsmanship. It lies in expressing one's personality in one's product—whether that product be a leader head, a cornice, or any other form of sheet metal work.

The sheet metal artisan or contractor who does neat and reliable work and who takes the trouble to design his patterns in such a manner as to please the eye, soon acquires a reputation for fine craftsmanship.

His work advertises him. His services are sought by people who appreciate neatness, artistry, and reliability.

The more he endeavors to exercise his craftsmanship in distinctive work of this kind the greater grows his skill and the more he is in demand. Logically, this will lead to prosperity and profit.

EDITORIAL COMMENT

EDITORIAL BRIEFS

CLOSE co-operation between plumbers and plumbing inspectors will help all concerned. Co-operation is needed to raise the status of the plumbing trade to the desired level. Much data of interest to plumbers concerning the work of the inspectors was given at the convention reported in this issue.

* * *

THOUGH expenditure on water purification in Canada is excessive, amounting to over \$7,000,000 spent by municipalities in Ontario alone during last year, it is fully justified when one notes that in the past decade largely as result of water purification in Ontario, typhoid fever has been reduced from 31.5 to 5.2 per thousand. All municipal plans for water purification must be passed by the Ontario Board of Health so that uniformity will be had and the most valuable counsel secured.

PROTECTING PUBLIC HEALTH

THE much discussed question as to the definite relation of plumbing to the public health was clearly dealt with by Dr. W. L. Hutton, Medical Health Officer of Brantford, at the convention of the Association of Plumbing and Drainage Inspectors, who pointed out that sanitation and hygiene have one science in common and that these must work together for the good of mankind.

In earlier days it was the opinion that all disease breeds in filth but modern science has proved that the spread of dangerous diseases is more directly traced to the secretions and excretions of the human and animal body and are more likely to be spread by personal contact than by the air. Infectious diseases breed in the bodies of men and animals, not in filth, so that it is plainly evident that modern sewage disposal systems for rapidly removing such matter are one of the most important agencies of modern times for the protection of public health.

What better reason, therefore, has the plumber of today to be in business than that of assisting to protect the health of mankind! The public must be educated to an appreciation of the importance of sanitary installations. The sanitary state of the community is governed by the ideas of its people, hence the need for more education. Instruction will be much more effective

in the situation than will be sanitary legislation. Plumbers can do well, therefore, to preach the gospel that disease does not as a rule lurk in the garbage pail, the rubbish pile, or the public dump, but in human waste, and that efficient means for disposing of this waste is the safest policy to be followed.

A LOST ART

THE difficulty of many master plumbers to attract the right type of apprentices to the trade is one of the problems of today. No doubt many readers will agree with the following opinion expressed by a Winnipeg master plumber:

Plumbing threatens to become a lost art around these parts.

The lure of the white collar and the "pinchback" suit is spoiling the Winnipeg youth for this ancient and honorable trade.

While menders of broken water mains and balky furnaces here are coining enough to make professional men wonder ruefully why they were not given out as apprentices instead of sent to college when they were young, jobs are being turned away every minute because men cannot be found to do the work or boys to learn the trade, he says.

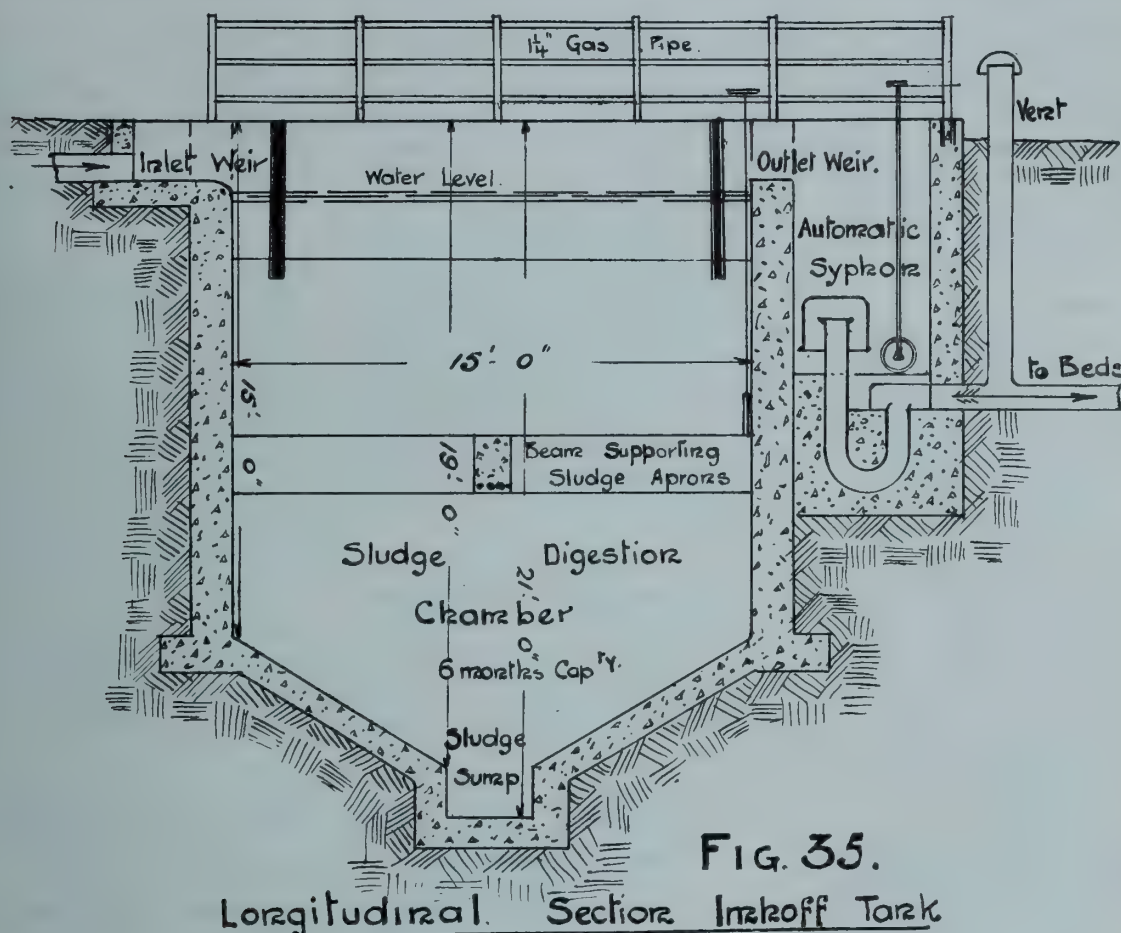
"Nowadays boys do not want to don overalls," he avers. "They want to wear collars and tight suits and waste their time away behind a counter in a department store or go into a bank at \$50 a month, instead."

He blames the girls and weak parents, mostly the girls. According to this craftsman the finical sex seem to prefer the lily-white hands of one who neither toils greatly or spins, to the broken nails of the wrench-user, and the smooth, pallid complexion of the office worker to the rough, red, if honest, face of the man who earns his daily bread by the sweat of his brow.

"Now, when I learned my trade 30 years ago, it was considered an honor for a girl to walk out with a real capable worker instead of an office stool polisher," he declares. "But the women today and present-day parents are one as bad as the other. I suppose it is the parents after all that are to blame. If they exercised a little more wholesome discipline they would bring up their children, both boys and girls, to know what is right and what isn't."

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May be Referred to and Studied



Article No. 27 of the Series—Illustration No. 35

(Continued from last issue)

THE sketch plan and section illustrated (Fig. 35) shows an Imhoff installation constructed on an ideal location as regards profile and elevation of the land and it gives at a glance the whole process of treatment from the small screening chamber to the final effluent chamber before the purified sewage is discharged into the stream or ditch. The installation consists of a small screening chamber for removing the floating heavy mineral matter by cast iron screens and catchpit respectively, with valves and pipe by-pass for closing down the works during cleansing operations and diverting the sewage so as to prevent the same backing up should the works be out of commission at the same time allowing repairs to be undertaken without having to take care of the sewage flow as shown in Fig. 35.

From the screening chamber the sewage passes into the Imhoff tank which is divided into two separate

compartments by means of overlapping sludge aprons which allow the heavy suspended matter to pass through the slot into the sludge sedimentation chamber. At the same time this method of overlapping the one apron beyond the other prevents the escape of gases and the taking of sludge into re-suspension caused through the septic action or putrefaction and decay of the deposited sludge or suspended matter from the sludge digestion chamber.

This is one of the greatest drawbacks to the septic tank, especially when artificial means of filtration have to be resorted to for the final treatment of sewage as the fine suspended matter caused through the decomposition or splitting up of the sludge cannot be satisfactorily deposited again and passes off with the clarified tank effluent and in time clogs and chokes the filtration area, thus reducing its capacity.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Alexandra, Ont.—Curville & Chenier, plumbers, have dissolved.

Montreal.—J. A. Francoeur & Co., plumbers, have dissolved.

Sarnia, Ont.—A. Lawson, plumber, has sold out to Nelson & Sons.

OBITUARY

Toronto.—Daniel Glynn, a life-long resident of the city, died recently at his home, 962 Dundas Street. The late Mr. Glynn was sixty-three years of age, and had carried on a plumbing business at the above address for fifteen years.

AWARDED SEWER CONTRACT.

Toronto.—The lowest tenderer, the McKnight Construction Company, has been awarded by the Board of Control the Contract for the laying of sewers in the recently annexed land on the north side of Danforth Avenue and west of Woodbine Avenue.

MUCH DAMAGE FROM WATER MAIN BURST

Montreal.—Two boys were drowned, damage estimated at over \$100,000 done, thirteen families were rendered homeless and 28 persons were taken to Montreal General Hospital as the result of a burst high pressure water main feeding the east end of the city, which occurred recently.

SEWER CONSTRUCTION IN BRANTFORD

Brantford, Ont.—The construction of 16 sanitary sewers and three water mains will be recommended to the City Council and the Board of Water Commissioners as a result of a decision reached at a meeting of the Board of Health. The construction work is in the Bellevue district.

EXPLAINS SASKATCHEWAN RIVER WATER SCHEME

Moose Jaw.—Major J. A. McPherson, chairman of the Saskatchewan River Water Commission, recently addressed the Board of Trade regarding the Saskatchewan River water system. He stated that the pipe from the river to Belbeck would be 34-in. pipe, from Belbeck

to Moose Jaw 24 inch and to Regina 28 inch. This pipe line would be sufficient, the speaker stated, to give by gravity six to seven million gallons of water per day, while extra reservoirs and boosters could be installed as the requirements justified them, which would increase this supply to twelve million gallons per day.

The system would also be laid out in such a manner that in the event of breakdowns the reservoirs could furnish the supply reversely, the reservoir at Regina to take care of the Moose Jaw supply, while Eyebrow could supply Belbeck and so on.

The capacity of these reservoirs would be as follows: Eyebrow, 20 million gallons; Gilroy, 12 million; Belbeck, 20 million, and King's, 40 million.

INSURE ADEQUATE WATER SUPPLY FOR ST. THOMAS

St. Thomas met with smooth sailing with their legislation before the Private Bills Committee of the Ontario House.

St. Thomas, through City Solicitor Doherty, asked for approval of its big project to insure an adequate water supply for the next 50 years by the damming of Kettle Creek, and the committee put it through without a single objection.

ENERGETIC MAYOR OF MIMICO IS A PLUMBER

Mimico, Ont.—Mayor J. H. Doughty, who has worked so energetically on behalf of the unemployed of the district since his election as head of the council, is one of Mimico's successful business men. Ten years ago he came to the town as an employe of H. Heather & Son, to-day he is proprietor of a large and flourishing plumbing concern in Mimico. Mr. Doughty's slogan is "a progressive policy for a progressive town," and it is confidently expected by the citizens who elected him as their mayor that under his regime Mimico's industrial welfare will be well looked after.

Alkali Destroys Concrete Sewers

Report of Works Department of Winnipeg Shows 44 Miles of Sewers Are in Disintegration —To Use Segmental Tile in Future

WINNIPEG, Man.—Between 44 and 45 miles of concrete sewers under Winnipeg's streets are more or less disintegrated by alkali-saturated water and eventually must be replaced, department reports to the city authorities revealed.

It is reported that the city will not construct any more concrete sewers. Some of the concrete sewers have collapsed.

The city will consider a recommendation that future sewers be built of segmental tile or brick. Official records show that brick sewers last from 20 to 36 years.

Direct evidence that alkali was disintegrating sewers was obtained under Hart Avenue in 1910. The city's entire sewer system cost more than \$4,000,000. The length of sewers is 254 miles, of which 44½ miles are concrete.

Here are portions of the official reports:

"Sewers constructed of concrete are in a serious condition, several of them being so badly disintegrated that portions of the walls have collapsed and exposed the clay outside.

"Disintegration of the concrete sewers first was noticed in 1910, but was then considered to be due either to bad workmanship or poor material and not of serious importance. This theory has since been discarded as practically every concrete sewer in the city has become affected to a greater or less degree in the last few years.

"It now has been definitely established both by practical experiments and laboratory investigation that this condition is due to the presence of alkali salts in the soil in combination with the ground water."

Experts in the city hall explained that segmental tile, with which sewers in future are to be built, is burnt fire clay.

WESTERN ONTARIO NEWS

Vincent Dougherty, Yarmouth Heights, St. Thomas, Ont., wants prices on heating, plumbing and electric equipment for new \$7,000 home, for which he is preparing plans.

* * *

Lewis Iler, of Harrow, Ont., is preparing for a new \$5,000 bungalow and wants prices at once on heating and plumbing equipment.

* * *

C. Birney, of Exeter, Ont., is preparing plans for new \$6,000 dwelling and wants prices on heating, plumbing and electrical work.

* * *

Construction of new lavatories and plumbing in connection with the Collegiate at St. Marys, Ont., is contemplated at a cost of \$10,000. Plans are to be prepared. J. Pool, chairman.

* * *

George Duncan, Embro, wants prices on heating and plumbing in connection with new \$5,000 bungalow to be erected in the spring.

* * *

Frank Spry, P.O. Box 254, Amherstburg, Ont., is preparing plans for new residence and wants prices on heating, plumbing and electrical work. Estimated cost \$4,800.

* * *

Norman A. Roberts, of the Roberts Engraving Co., London, Ont., is interested in prices of heating, plumbing and electrical work in connection with new \$4,500 dwelling to be erected in spring.

* * *

Robert Oliver, of Listowel, Ont., wants prices on hot air heating and plumbing for new \$5,000 residence.

* * *

William Leeson, R.R. 1, Thamesville, wants prices on heating and plumbing for new \$5,000 residence to be erected this spring.

* * *

Robert Gray, of Port Lambton, Ont., wants prices on hot air heating and plumbing for residence.

* * *

George Lee, of Melbourne, Ont., is preparing plans for new \$5,000 bungalow and wants prices on heating and plumbing.

* * *

Gordon Scott, 112 Elmwood Avenue, London, wants prices on heating, plumbing and electrical work for new residence to be erected in spring.

* * *

W. J. Thompson, field manager for the Union Natural Gas Co., is being moved from Chatham and will take up his headquarters at Oil Springs early in March.

* * *

Cunningham & Co., of Paris, Ont., co-operated in the big "Dollar Day" sale held last Friday and had a fine display of plumbing goods and electrical fixtures

Doings in Ottawa and District

THE bill introduced in the Ontario Legislature by Hon. Thomas Crawford to amend the Municipal Act by providing for municipal inspection of all hot water and steam fitting plants, finds a warm supporter in Ottawa's chief plumbing inspector, S. Daughtry. Commenting on the bill Mr. Daughtry said he sincerely hoped it would become law, for then the public would enjoy a wide measure of protection, which it is at present obliged to forego.

At present, when complaints are received at the city hall from tenants of apartment houses, who are being cheated of their rightful amount of heat, the civic authorities are powerless to render any assistance. The same conditions apply in connection with the installation of plumbing fittings in buildings. Under the proposed act the officers in charge of the administration of it in municipalities would make it their business to see that the proper materials were used.

Plumbers Want Increase

The journeymen plumbers are out for another increase this year. They have

presented their demands for an advance from 80 cents per hour to one dollar. Last year they were granted an increase of 15 cents an hour, going from 65 to 80 cents.

More Frequent Garbage Collection

The city clerk has received a communication from the Ottawa East Municipal Association, supporting Ald. H. McElroy's motion, calling for a bi-weekly collection of garbage during the summer months and suggesting that the collecting be done during the night instead of in the day time.

Central Heating Plant

At a meeting of the Carleton County Council the Jail and Building Committee presented a report on the recent recommendation for the installation of a central heating plant for the court house and jail buildings, stating that the estimated cost was \$50,000. They had considered the matter fully, but were not decided yet whether to recommend going ahead with the work.

in both store and window. The sale was the most successful of several held by the Paris business men and this to some extent is accounted for by the co-operative advertising campaign that was carried out, whole pages being used, and each merchant paying a share.

* * *

City Engineer Harry Brazier, of London, Ont., wants prices immediately on all sizes of tile required for sewer work to be undertaken this year and also for all castings required, manhole tops, etc.

* * *

T. E. Walsh, Federal Advertising Service, wants prices on heating, plumbing and electrical work in connection with new \$5,000 bungalow he plans to erect in spring.

* * *

Prices are wanted immediately by the city council at London, Ont., on electrically driven pumps for pumping sewage. Estimated cost \$15,000. S. Baker, city clerk.

* * *

Thomas Copp, 51 Wortley Road, London, Ont., wants prices on plumbing and heating for two dwellings being erected at a cost of \$7,000.

* * *

D. T. Black, of Niagara Falls, has been appointed city engineer at Galt, Ont., to succeed W. H. Fairchild, who recently resigned to become general manager of the Public Utilities Commission.

The council at Stratford, Ont., has authorized the construction of new sewers on Frederick and Erie Streets, and work will proceed in the spring.

* * *

Babb and Young have opened up a shop for plumbing and tinsmithing at Mitchell, Ont., and are interested in receiving catalogues from the trade.

* * *

H. T. Thornton, 25 Marley Place, London, Ont., is remodelling residence at a cost of \$3,000 and will extend heating system.

* * *

Plans are being prepared at Chatham, Ont., for a new nurses' home to cost \$50,000. Mrs. Campbell, chairman of the Board of Management, is interested in prices of heating and plumbing.

WINDSOR WATER BOARD TO SECEDE

Windsor.—Asked by the City Council to co-operate in presenting the city's application to the Ontario Legislature for withdrawal from the Essex Utilities Commission, Windsor Water Board unanimously complied with the request, in addition to passing a resolution endorsing the move to secede. The application, it is believed, will come before the Private Bills Committee of the Legislature shortly.

\$35,000,000 Worth

City Architect Price, of Toronto, is looking forward to 1921 being the biggest building year in the history of the city. He feels that the hesitation of the public has largely been a state of mind influenced by the attitude of the press.

The revised City Hall estimates of Winnipeg place the building operations contemplated in that city as \$14,000,000; the largest since pre-war days.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Building In Sight!

With housing accommodations taxed to the limit, companies clamoring for space in office blocks, and business concerns increasing their premises, facts indicate favorable opportunities for the sale of plumbing enamelware.

In any event, there are indications that 1921 will be a building year and the need for high-grade plumbing enamelware will be greater than ever. This building represents a definite amount of plumbing enamelware which will be needed. It means good business for plumbing men in 1921.

Let us pull together to encourage new installations for the betterment of Canada and the good of the trade during 1921.

J. Company, Limited

Halifax Office:
DY BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

WATERWORKS, SEWERAGE, ETC.

Ottawa, Ont.—Construction of sewer between Fairmont and Bayswater Ave. is contemplated.

Sault Ste. Marie, Ont.—R. G. Campbell, clerk, will receive tenders till March 7, for construction of about 570 lin. ft. of 54-inch circular reinforced concrete pipe sewer and 2,560 lin. ft. of 40-inch reinforced concrete pipe, together with appurtenances. Plans at office of Engineer W. L. McFaul.

Vancouver, B.C.—Plans are prepared for sewer in Turner Street to cost \$11,000 and Georgia Street costing \$8,600.

Victoria, B.C.—Work on first unit of sewer construction costing approximately \$60,000 for city has commenced. F. M. Preston, Engineer.

TENDERS WANTED.

Edmonton, Alta.—Legislature has decided to proceed with erection of Home for Feeble-minded at estimated cost of \$200,000. Tenders will be called at an early date. R. P. Blakely, Prov. Architect, Parliament Buildings, Edmonton.

Fredericton, N.B.—F. N. Brodie, architect, 42 Princess Street, St. John, will call tenders for erection of addition to school estimated to cost \$35,000 for school board.

Montreal—New plans will be prepared and tenders will be called for church estimated to cost \$100,000 for Church of Philemon de Rosemount, Gauthier and Doust architects, 180 St. James Street.

Sault Ste. Marie, Ont.—Tenders will be received separately for each trade by H. F. McNaughton, Parliament Buildings, Toronto, until March 5 for Court House costing \$200,000 for Provincial Government. Plans at office of Sheriff, Sault Ste. Marie.

Victoria, B.C.—Revised plans for synod hall to cost \$110,000 for Anglican Church have been approved and tenders will be called by Architect J. C. M. Keith, Sayward Building, Victoria.

Winnipeg, Man.—Tenders will be called April 4th for erection of schools costing \$7,000 each in Birkenhead school district for Provincial Government.

Lepreau, N.B.—E. Hawken, Ottawa, Acting Deputy Minister of Dept. of Ma-

rine and Fisheries, will receive tenders until April 1 for erection of residence. Plans at Dept. of Marine and Fisheries, Ottawa; Agency of Dept., St. John, N.B., and at P.O. of St. Andrews, St. Stephens, Campobello and Lepreau. An accepted cheque equal to 10 per cent. of tender is required.

Montreal — Six residences costing \$9,000 each are being erected by Lancashire Land and Construction Co., 229 Ontario Street west. Tenders will be received for plumbing and heating.

Toronto—C. Cameron, 89 Raglan Ave., will receive tenders for heating and plumbing required for two residences costing \$7,500 each.

Toronto—E. H. Hobson, 153 Sherwood Avenue, will receive tenders for all trades required for erection of residence.

Montreal—S. Marotta, 195 St. Catharine Street, will receive tenders for plumbing and heating on contract for alterations to synagogue costing \$35,000.

Toronto—W. E. Whitten will receive tenders for plumbing and heating for residence costing \$20,000 for H. E. Manning.

Indian Head, Sask.—Tenders will be received until April 1 by Storey & Van Egmond, architects, McCallum Hill Block, Regina, for erection of school estimated to cost \$40,000. Plans with architect.

Kamsack, Sask.—Storey & Van Egmond, architects, McCallum Hill Block, Regina, have plans and will receive tenders until about April 1 for erection of addition to school costing \$25,000 for public school board.

Limerick, Sask.—Storey & Van Egmond, architects, McCallum Hill Block, Regina, have plans and will receive tenders until March 15 for extension to school costing \$15,000.

Merone, Sask.—Tenders will be received until about March 15th by Storey & Van Egmond, McCallum Hill Block, Regina, for erection of school costing \$15,000 for public school board.

Timmins, Ont.—H. E. Montgomery, clerk Town Council, will receive tenders until March 14 for construction of sew-

age disposal plant. Plans with J. F. Henderson, town engineer.

Moosomin, Sask.—George S. Page, secretary-treasurer, Moosomin Public School District, will receive tenders until March 10 for hot air furnaces for brick school building.

Radville, Sask.—Tenders will be received by Storey & Van Egmond, architects, McCallum Hill Block, Regina, until about March 15, for erection of addition to school estimated to cost \$25,000. Plans with architect.

Regina, Sask.—L. A. Thornton, City Commissioner, will receive tenders, no closing date set, for erection of public comfort station estimated to cost \$25,000 for city. Plans with building inspector.

Regina, Sask.—J. H. Puntin, architect, 308 Drake Block, Regina, is preparing plans for school estimated to cost \$190,000 for school board. Tenders will be called about April 1 by architect.

Regina, Sask.—Storey & Van Egmond, architects, McCallum Hill Block, will receive tenders until March 1 for alterations to building for stores estimated to cost \$10,000 for United Cigar Stores, Inc.

Shaunavon, Sask.—Construction of sewage disposal plant at estimated cost of \$150,000 is contemplated by town. F. G. Horsey, clerk.

Shaunavon, Sask.—Erection of hospital costing \$60,000 is being considered by Union Hospital Board.

St. Catharines, Ont.—W. H. Brown, Grand Central Hotel, will receive tenders for plumbing required for alterations to hotel.

CONTRACTS AWARDED

Montreal—Nap. Deguire, 52 Third Avenue, Lachine, has plumbing and heating contracts on St. Georges School, costing \$60,000.

Selkirk, Man.—Plumbing and heating contracts for Soldiers' Pavilion and Receiving Hospital costing \$469,000 for Provincial Government are awarded to James Ballantyne Co., Winnipeg.

Montreal—W. G. Bailey, 145 Bleury Street, has plumbing and heating contracts for warehouse costing \$60,000 for R. W. Bertram.

Montreal—Heating contract in alterations to office building costing \$110,000 for City and District Savings Bank, 176 St. James Street, is awarded to J. Brunet Co., 223 St. Lawrence Blvd.

Sudbury, Ont.—Wm. Grant & Hiscock, 29 Durham Street, have plumbing contract for erection of business building costing \$25,000 for Liberty Hall Co.

* * *

Toronto—A. Millar, 40 Kingsmount Park Road, has plumbing contract for store and apartments costing \$12,000 for I. Pimblett, 1464 Danforth Avenue. Pease Foundry Co. have heating contract on this building.

* * *

Toronto—W. Crawford, 99 Adelaide Street west, has plumbing contract for alterations to building for offices at cost of \$12,000 for C. A. Reed, 15 Adelaide Street west.

* * *

Montreal—Plumbing contract for four residences costing \$22,000 for L. P. Denis, 404 Beaudry Street, are placed with D. Kochenburger, 2739 St. Hubert Street.

* * *

Montreal—Plumbing and heating contracts for two residences costing \$6,000 each for D. Marcotte, are awarded to S. Martineau, 1666 St. Dominique Street.

* * *

Sarnia, Ont.—Plumbing contract for apartment house costing \$50,000 for Revely & MacDonald is awarded to H. Hall, Wellington Street.

* * *

Toronto—P. J. Dunn, 3124 Dundas St. west, has plumbing contract for residence costing \$18,000 for Dr. W. J. Wilson.

* * *

Toronto—A. T. Stevens, 516 Yonge Street, has plumbing contracts for two residences costing \$5,500 each for J. A. Thomas.

* * *

Toronto—J. B. Bowen has plumbing contract for four pairs of residences costing \$45,000 for L. H. Lankin.

* * *

Toronto—Duffort Bros., 862 Kingston Road, have plumbing contract for two residences costing \$9,000 for A. McIntyre and Longbottom.

* * *

Windsor, Ont.—Plumbing contract for residence costing \$7,000 for P. Osterhout is awarded to C. E. Grenan, 342 Ellis Avenue.

* * *

Windsor, Ont.—Windsor Hardware Co. has plumbing and heating contracts for residence costing \$4,000 for J. Thompson.

* * *

Toronto—Plumbing and heating contracts for restaurant and office building for Childs Co., New York, are awarded to Purdy-Mansell Ltd., Toronto.

CONSTRUCTION

Amaranth, Man.—W. W. Lachance, architect, 98 St. Paul Street, St. Catharines, Ont., is preparing plans for school for

Consolidated S.D. of Flora. A Kyrke Palin, secretary-treasurer, S.D. 1534, Amaranth, Man.

* * *

Amherstburg, Ont.—High School Board passed resolution authorizing preparation of plans for high school costing \$60,000.

* * *

Beauport, Que.—H. Laberge, architect, 85 Dalhousie Street, Quebec, is preparing plans for addition to school for school board.

* * *

Grande Prairie City, Alta.—Plans are being prepared for addition to high school to cost \$22,000 for Grande Prairie S. D.

* * *

Guelph, Ont.—Erection of Veterinary College costing \$60,000 and Dairy Building cost \$40,000 at Ontario Agricultural College is contemplated by Provincial Government, Department of Public Works, Toronto.

* * *

Niagara Falls, Ont.—C. M. Borter, architect, 102 Main Street, will prepare plans for a school for public school board.

* * *

Vancouver—Tenders will be called shortly for alterations and addition to building at estimated cost of \$40,000 for L. R. Steele Co., Ltd., Royal Bank Bldg., Toronto. Gardiner & Mercer, architects, 718 Granville St., Vancouver.

* * *

Forrest, Ont.—Plans are prepared for a school for school board. D. McKinley, secy.-treas., R.R. No. 5, Forrest, Ont.

* * *

Coleville, Sask.—Erection of a school to cost \$13,000 is contemplated by Coleville S.D.

* * *

Dundas, Ont.—Construction of public lavatories at cost of \$5,000 is contemplated by Park Commissioners. B. Racey, secretary-treasurer.

* * *

Kerwood, Ont.—Plans are being prepared for church to cost \$16,000 for Methodist Church congregation. J. H. Richardson, secretary.

* * *

Lakeview, Ont.—Tenders will be called shortly for alternative plans for a school for School Section No. 7.

* * *

Lowbanks, Ont.—S.S. No. 6, Moulton Twp., contemplates erecting a school. Grant Mitchener, secy., Lowbanks, Ont.

* * *

Milestone, Sask.—Erection of town hall at cost of \$20,000 is contemplated by municipality. By-law will be submitted. E. J. Harding, clerk.

* * *

Montreal.—Soeur de la Providence, cor, Fullam and St. Catherine St. east, contemplate alterations to building for

anti-tuberculosis hospital at cost of \$250,000. La Societe Catholique de Protection et de Renseignement will raise fund for this project.

* * *

Quebec, Que.—Plans for addition to Chateau Frontenac, costing \$2,000,000 for C. P. R. are being changed to include central tower of 16 stories. E. & W. S. Maxwell, architects, 360 Beaver Hall Hill, Montreal.

* * *

Regina, Sask.—Storey & Van Egmond, architects, McCallum Hill Block, Regina, have plans and will receive tenders, no closing date set, for alterations to building for United Cigar Stores Inc., H. O. 44 West 18th St., New York.

* * *

Rimbey, Alta.—Erection of a bank at cost of \$20,000 is contemplated by Merchants Bank of Canada.

Catalogues and Booklets

GASOLINE FIRE POTS AND TORCHES

Clayton & Lambert, Detroit, Mich, have recently issued a catalog listing and describing the various lines of fire pots and gasoline torches they manufacture. About 60 different styles and sizes of torches suitable for all kinds of uses, trades and jobs, and varying in size from a jeweller's or electrician's torch, 1¼ inch by 6½ inch, to a brazing machine with a ten gallon tank.

The new improved double needle torch recently introduced by Clayton & Lambert, is also shown and described. The booklet also includes a list of all extra repair parts for torches and fire pots.

* * *

PERFECTION GRINDERS

The Star Specialty Manufacturing Co., 227-233 W. Erie St., Chicago, Ill., have issued a catalog in which the Perfection grinders made by this firm are listed and described. A size and style of grinder is made for different requirements, and besides the belt driven grinders for mills, factories, shops, farms or garages using gasoline or other power there is also a full line of lighter grinders suitable for household and domestic use, as well as for mechanics, farmers, butchers, etc.

Perfection grinders are stated to combine the best of material, workmanship and finish, and each machine is thoroughly inspected and guaranteed to be perfect. The Star Specialty Co. is represented in Canada by T. Mortimer, 64 Wellington St. W., Toronto, Ont.

* * *

SEAMLESS BRASS AND COPPER TUBING

A price list has been issued by the Goldstein Mfg. Co., John St., Toronto, Ont., of brass and copper seamless drawn tubes. This firm specialize in small sizes and thin gauges and fancy shapes in brass, copper, nickel, silver and precious metals, and also in silver solders for all purposes. Alexander Gibb, 3 St. Nicholas St., Montreal, Que., is selling agent for the Goldstein Mfg. Co.

NEW CANADIAN PATENTS

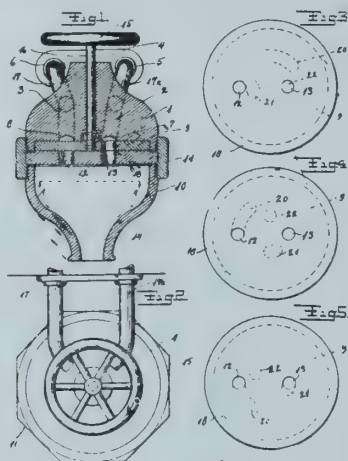
(Issued for Plumbing and Heating Goods)

NO. 208,080. COMBINATION FAUCET

Tanas Budzinsky, New York City.

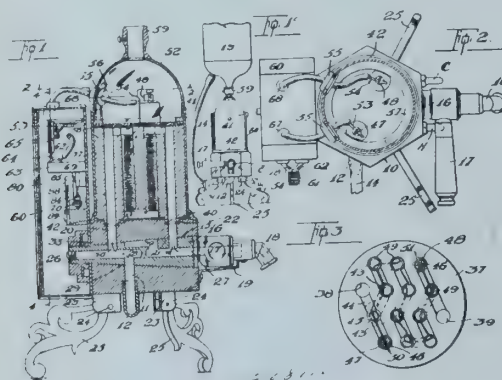
A combination faucet comprising an upper casing having inlet channels therein, a disc rotatably mounted on the underside of said casing, the mouths of said channel lying above said disc and at unequal distances from the centre thereof, means for rotating said disc, a stationary disc mounted underneath said rotatable disc and having holes therein directly under the mouths of said channels, and a plurality of spaced apart holes in said rotatable disc.

A combination faucet comprising an upper casing having inlet channels therein, a disc rotatably mounted on the underside of said casing, the mouths of said channels lying above the said disc and at unequal distances from the centre thereof, means for ro-



tating said disc, a stationary disc mounted underneath said rotatable disc and having holes therein directly underneath said mouths of said channels, and a plurality of spaced apart holes in said rotatable disc including a substantially circular hole and a substantially elliptical hole adapted to register with one of said holes in said stationary disc, and a second substantially elliptical hole adapted to register with the other of said holes in said stationary disc.

A combination faucet comprising a casing having channels therein, a disc rotatably mounted adjacent said casing, the mouths of said channels lying adjacent said disc at unequal distances from the centre thereof, means for rotating said disc, a stationary disc mounted adjacent said rotatable disc and having therein directly adjacent said mouths of said channels, and a plurality of spaced apart holes in said rotatable disc.



NO. 208,114. ELECTRICAL WATER HEATER

Joseph Charles Feldman, New York City.

In switch devices for automatic water heaters, the combination of relatively fixed and movable switch members, a tumbler to

which the movable member is attached, said tumbler including a telescopic bolt, a member acting against the bolt to move the tumbler, and means to cause movement of the bolt in and out of the tumbler during the movements of the tumbler.

In automatic switch devices for water heaters, the combination of relatively fixed and movable switch members, a pivoted tumbler to which the movable member is attached, said tumbler having a tubular socket, the axis of which is radial with respect to the pivot thereof, a bolt slidably fitted in said socket, hand controlled means acting against the bolt to cause it and the tumbler to move around the pivot to bring the movable member into or out of engagement with the other members, and means acting upon the bolt serving to move it along the socket while the tumbler swings around its pivot.

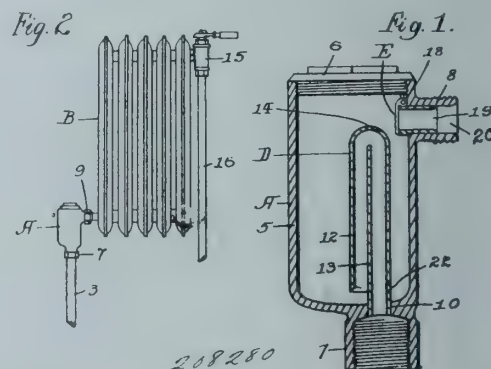
In switch devices for automatic water heaters, the combination of relatively fixed and movable switch members, a tumbler to which the movable member is attached and including a tubular socket, a bolt fitted slidably in said socket, a spring within the socket tending to project the bolt therefrom, a member acting against the projecting end of the bolt serving to move it and the tumbler to close the switch, means acting on the tumbler to restore it to normal position breaking the switch, and means acting upon the bolt to force it inward against the socket spring when the tumbler is drawn back toward normal position.

* * *

NO. 208,280. AIR EXHAUST FOR VAPOUR HEATING SYSTEMS.

Arthur P. Crosby and William T. Price, Minneapolis.

A return seal for a vapour system comprising a casing having parts in communication with a radiator and with a return pipe, a siphon mounted in said casing and communicating with said return pipe and having a restricted passage in the upper wall of the arch of the siphon above the level of the liquid when siphonic action begins and through which passage air is sucked from the radiator intermittently to break the siphon, and a check valve in the radiator port adapted to automatically check return flow into the radiator.



A return seal for a vapour system comprising a casing having ports in communication with a radiator and with a return pipe, a siphon mounted in said casing and communicating with said return pipe and having a restricted passage above the normal level of the water when siphonic action begins and communicating with said return pipe, said siphon having a second restricted passage communicating with said return pipe and located near the bottom of said casing, and a check valve in the radiator port adapted to automatically check return flow into the radiator.

An air exhaust for vapour or steam heating system comprising a trap having a siphonic discharge and a port for communication with a heat radiating means and a restricted passage in communication with the arch of the siphon and above the normal level of the liquid when siphonic action begins, the water of condensation in said trap normally forming a seal for said heat radiating means and the accumulation of an abnormal volume of condensation in said trap, as when said means is cold, setting up siphonic action intermittently to suck the air from said radiating means through said passage, the excess water in said trap co-operating with said passage to alternately make and break the siphon until the air is removed from said heat radiating means and a check valve in the port adapted to automatically check return flow into the radiator.

Systematizing and Managing the Plumbers' Office

Necessity of Safe Keeping of Records—Labor-Saving Methods
—Orderly Arrangement of Desk and Contents—Founded on
Information Secured by U.S. National Trade Extension Bureau.

D ID you ever study the habits of your journeymen regarding their kits and tools? Then, you have noticed how some men have their kits arranged so that there is a place for every tool, and each tool is in its proper place when not in use. Not only this, but these tools are so arranged that the ones used the most are the easiest to get at. On the other hand, some workmen throw everything into their kit helter-skelter, and every time they want anything they must handle every article in their kit. You will agree that workmen of the former class get more work done in less time, and with less trouble than those of the latter class. Workmen, such as those mentioned first, when starting on a job only need to take a glance at their equipment to know whether or not they have everything they should take with them. The man who lacks system, on the contrary, is always wasting time looking for the thing he needs or sending back to the shop for it.

Your desk and office tools and supplies present the same problem, and through lack of proper system and arrangement offer the same chance for loss of time and failure to accomplish results. This letter is written to offer suggestions to overcome these faults. It may be that some of the arrangements which are given will not fit your conditions. Do not let that fact stop you from arriving at some orderly arrangement of your desk and its contents. The old motto, "A place for everything, and everything in its place," if followed will do more towards getting work done, and things accomplished, than was ever dreamed of.

Remember when you were a journeyman, the care you took of a new tool; how you always put it carefully in some certain place; the time you spent keeping it sharpened and in perfect order. Apply the same care and thoughtfulness to your desk and desk tools, and see the results. It will start you exercising the same care and attention along other lines.

Make an inflexible rule in your office that every employee, who uses a desk, must, when leaving at night, clear everything off the top except the ink well and desk calendar pad. Then above all, see that you are not a violator yourself. To do this means to provide a place for everything, and when there is a place provided, the various articles of equipment will stay there when not in use. This holds true particularly with papers. There should be on the top of

your desk only such papers as are necessary for the matter you are working on. When you have other papers scattered over your desk your mind is distracted from the matter under consideration, and it does not get the attention it deserves. Either it is half done, or put aside to take up something else that seems more pressing. Thus you flit about from one thing to another, finishing nothing. Before leaving your desk see that every paper is removed from the top and placed in the proper place.

A good plan for checking up on the above system and to prove that every one has their papers in the proper place is as follows. Once each week have the stenographer, bookkeeper, yourself and other office employees empty every drawer in their desk. Then if it takes them more than five minutes to place all papers back in the drawers they haven't been following your rule.

Folders For Paper

The first thing we want to emphasize is that there should be a folder for the papers on every subject. In this way important papers do not get lost or misplaced, by being mixed up with subjects other than the one to which they pertain. Furthermore, when you start to work on some matter, the papers are laid on your desk in a folder. If you leave your desk it is very easy to slip the few papers you are using into this folder, and they are then covered up, so that no important information comes into the possession of outsiders, or those around your office who have not any business with such knowledge.

For the office having a bookkeeper and an estimator, or where the contractor does the estimating, we suggest a flat top desk 60 in. long and 48 in. wide. This is a regular stock size that can be purchased from any dealer in office furniture.

Let us analyze the various things found in the desk. We will begin with the left-hand or contractor's side:

Drawer No. 1, which is the top drawer on the left-hand side, is for the "Desk Organizer." It should always remain in the drawer, as any papers needed can be readily filed in it, or taken from it. The Desk Organizer has ten compartments with a place to insert a label showing the contents of each compartment. Do not get in the habit of making this a permanent file. It is intended only for papers being held pending a definite decision.

We suggest the following labels for the different compartments:

1. Incoming mail.
2. To sign.
3. Immediate attention.
4. To be attended to soon.
5. Material to be ordered.
6. Jobs to be started.
7. Quotations.
8. Monthly statements, list of outstanding accounts, etc.
9. Suspense.
10. Invoices to approve.

Have whoever opens the mail, put mail for your attention into the first section. Then, after going over this you will put the various letters in their proper sections. Letters to which an answer must be dictated go in the third section, and so on.

When your stenographer has your mail or other papers ready for you to sign, she puts them in the second section, and you always know where to look for them after being away from the office. In this way important letters concerning estimates and other private matters are not left on desks for people to read who have no business doing so.

In the third section, all other letters and papers that require immediate attention will be placed. This includes such letters as require the dictation of an immediate reply, as well as any other papers needing attention immediately. If some matter comes to your mind that you want to write some one about, or that you need some action on, jot it down on a piece of scratch paper, and put it in this section. In this way the writing of important letters and attention to important matters will not be overlooked.

The fourth section takes care of all matters that do not require immediate attention, but should be attended to as soon as possible. The same procedure can be followed with this section as was outlined for the preceding one.

Keeping Track of Material Needed

In the fifth section, put all papers pertaining to material that is to be ordered. Go through these papers every day, so that you will not overlook getting your orders in on time. When a salesman calls upon you, you can take these papers out, glance over them, and see if there are any notes concerning material which his house handles and obtain his prices upon your requirements.

The sixth section is to contain papers regarding jobs that are to be started. Whenever you come to lay out work for your journeymen, you then look over the

Continued on Page 36.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PPRICE readjustments have quieted down a little and not so many changes are noted in quotations on plumbing and steamfitting goods. The chief features are some lower prices on lead products and declines in some markets on black and galvanized sheets. Ingot metals remain extremely quiet, but the tone is easier and pig lead and spelter are showing low levels on outside primary markets. Tin continues to fluctuate, but a decline on English markets is offset by a rise in exchange. Some lower quotations are made on boiler tubes, zinc sheets, solders, calking lead, oakum and boiler tubes. Prices remain unchanged on wrought pipe and fittings, and soil pipe, eaves-trough, radiators, range boilers, and compression goods are held unchanged. Another reduction has

been made on white lead in oil. The scrap metal market is still quiet with little change shown in prices. Enamelled wares show no changes in quotations.

In the primary steel markets there has been some price cutting by some of the independent mills in the United States, but reports from Pittsburgh indicate that it has not resulted in any appreciable increase of business. The lines most affected have been bars, plates, shapes and sheets, and it is stated that no lower quotations have been made on pipe.

Wholesalers and manufacturers report a smaller demand for many lines of plumbing goods, but prospects are bright and many contracts are already in hand for later building activity.

MONTREAL

MONTREAL, February 26.—Plumbing goods have a somewhat steadier market report for this issue. However, price changes are made on some lines, and all to a lower level. Black and galvanized sheets furnish the featured decline, black sheets are now quoted from \$1.25 to \$1.65 per 100 lbs. lower on the different gauges. U.S. standard galvanized sheets \$1, and English standard 50 cents per 100 lbs. lower on all gauges. Boiler tubes have a reduction of from 5 to 10 per cent., and oakum is now \$4.50 per 50 lb. bale. Zinc sheets are reduced a half cent. Wrought pipe, pipe fittings, bar iron and steel, compression goods and cotton waste remain unchanged in prices, while ingot metals are a little easier.

A better demand is noted on soil pipe and fittings, range boilers and enamelled ware, and prospects are very bright for radiators and boilers as many contracts are now in the hands of dealers for spring building. Business on the whole is much better in the last two weeks.

Lower Prices on White Lead

Montreal.

White lead in oil is reduced \$2 per 100 pounds, the new quotations being \$14.85 in less than ton lots.

Wrought Pipe Holds

Montreal.

There has been no change made in the price of wrought iron or steel pipe, list No. 48 being the selling price. Stocks are reported in good shape, while sales are reported light. Prices are as follows:

PIPE—WROUGHT Standard Butt-weld Pipe

	Per 100 Ft.		Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
1/8	\$ 6 50	\$ 8 50	\$.....	\$.....		
1/4	5 31	7 41	5 91	8 01		
3/8	5 31	7 41	5 91	8 01		
1/2	7 10	8 63	7 95	9 48		
3/4	8 80	10 87	9 95	12 02		
1	13 01	16 07	14 71	17 77		
1 1/4	17 60	21 74	19 90	24 04		
1 1/2	21 04	25 99	23 79	27 84		

2	28 31	34 97	32 01	38 67
2 1/2	44 75	55 28	.....	.....
3	58 52	72 29	.....	.....
3 1/2	74 06	90 62	.....	.....
4	87 75	107 37	.....	.....

Standard Lapweld Pipe Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	\$32 01	\$ 38 67	\$35 71	\$42 37
2 1/2	48 26	58 79	54 11	64 64
3	63 11	76 88	70 76	84 35
3 1/2	75 90	92 46	85 10	101 66
4	89 93	109 55	100 83	120 45
4 1/2	1 05	1 29	1 30	1 54
5	1 22	1 50	1 52	1 80
6	1 58	1 95	1 97	2 33
7	2 06	2 53	2 53	3 01
8	2 16	2 66	2 66	3 16
8 1/2	2 49	3 07	3 07	3 64
9	2 98	3 67	3 67	4 36
10L	2 77	3 41	3 41	4 05
10	3 56	4 39	4 39	5 21

Metal Lath Prices Steady

Montreal.

Prices on metal lath remain unchanged with very little business offering. As this product is controlled entirely by the

building activity, sales might be expected small at this season. However, bookings have not been placed up to the present, compared with other years. Prices are as follows:

METAL LATH.

Painted—	
26 gauge, sq. yd.	0 42
24 gauge, sq. yd.	0 48
23 gauge, sq. yd.	0 57
Galvanized, 11c per sq. yd. extra.	
Discount 10%.	

Stillson Wrenches Lower

Montreal.

A reduction of 10 per cent. is made on Canadian made Stillson wrenches.

Fittings Show No Change

Montreal.

Pipe fittings remain unchanged, with a small business offering. Prices are also held at recent declines and are quoted as follows:

Bushings, cast	Less
Do., malleable	20%
Flanges	20%
Plugs	17 1/2%
Flange unions	7 1/2%
Malleable unions	32 1/2%
Nipples, black or galvanized up to 4 in.	50%
Do., 4 1/2 in. or larger	40%
Do., running thread, 4 in. and under ...	30%
Couplings, 4 in. and under	20%
Do., 4 1/2 in. and larger	Net list
POUND GOODS—	Black Galv.
Class B	0 20 0 28
Class C	0 13 0 20
Add 17 1/2%.	

Lead Products Sales Fair

Montreal.

Sales on the different lines of lead products are considered fair for this season of the year. Zinc sheets show a slight reduction in price, and are now quoted at 14 cents. Other prices remain unchanged and are as follows:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50

Note—Lead pipe is subject to a discount of 10%.

Lead traps and bends	Net list
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., wiping, lb.	0 22¾
Do., wire, lb.	0 35
Zinc sheets, casks	0 14
Do., broken lots	0 15½

Price Changes in Sheets

Montreal.

Lower prices are quoted on both black and galvanized sheets. These new quotations are made from present stocks in the hands of importers and jobbers, no lower levels being reached on the part of manufacturers and outside markets. The reduction on black sheets ranges from \$1.25 to \$1.65 per 100 pounds. U.S. standard galvanized sheets have declined \$1 and English standard 50 cents per 100 pounds on all gauges. Following are the revised prices:

PLATES—

10 gauge	6 25
12 gauge	6 30
14 gauge	6 45
16 gauge	6 55

BLACK SHEETS—

10 gauge	6 30
12 gauge	6 35
14 gauge	6 45
16 gauge	6 55
18-20 gauge	7 10
22-24 gauge	7 75
26 gauge	7 20
28 gauge	7 80

Sheets 36 in. wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—

U.S. Standard—

10½ gauge	10 75
28 gauge	10 25
26 gauge	10 00
22 and 24 gauge	9 85
20 gauge	9 65
18 gauge	9 65
16 gauge	9 50

English Standard—

28 gauge	12 00	11 00
26 gauge	11 75	10 75
24 gauge	11 15	10 35
22 gauge	10 80	9 90
18 and 20 gauge	10 10	9 75

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Corrugated Sheets Quiet

Montreal.

Few sales are being made on corrugated sheets at present; however, with building practically at a standstill at this season, this is expected. Prices are unchanged, remaining at declines of last month, and are as follows:

CORRUGATED SHEETS—

	Per 100 sq. ft.
No. 28 gauge	10 50
No. 26 gauge	11 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00

Less 1½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Boiler Tubes Reduced

Montreal.

A reduction has been made in the prices on boiler tubes, the decline affecting some sizes greater than others. From 5 per cent. to 10 per cent., however, covers the reduction made. A slight

improvement in the demand is shown during the last two weeks, but sales are still considered small for this season. Present quotations are as follows:

BOILER TUBES—

	Seamless Lapweld
1 inch	26 00
1¼ inch	27 25
1½ inch	26 25
1¾ inch	29 75
2 inch	29 25
2¼ inch	33 00
2½ inch	44 75
3 inch	49 25
3½ inch	63 50
4 inch	85 00

Iron and Steel Still Quiet

Montreal.

There is no improvement shown in the movement on the different lines of bar iron and steel. Sales are small and stocks are said to be light in the hands of the jobbers. There is no change in prices and they are as follows:

Common bar iron, 100 lbs.	4 20
Refined iron	5 80
Iron finish machinery steel	4 25
Mild steel	4 20
Single reeled machinery steel	6 80
Band steel	4 20
Spring steel	6 00
Sleighshoe steel	4 20
Tire steel	4 40
Toe calk steel	5 20
Harrow tooth steel	4 35
Mining tooth steel, per lb.	0 24½
Black Diamond tool and cast steel, per lb.	0 24½

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-1½ and thinner, 50c per 100 lbs. extra.

Waste Materials Quiet

Montreal.

The scrap market has a slightly firmer tone, with local prices unchanged. A very quiet time has been experienced in the waste material market, however this is thought to be well over by some dealers, and next month is expected to show a big improvement. Prices are the following:

Dealer's Buying Prices

Automobile tires	0 75
Yellow brass	0 07
Red brass	0 12½
Light brass	4 50
Scrap zinc	0 05
Lead, heavy	4 00
Lead, tea	2 50
Light copper	9 00
Heavy copper	11 50
Wrought iron, R. Rd., No. 1, per gr. ton	13 00
Malleable scrap (ton)	15 00
Pipe scrap (ton)	9 00
Heavy melting steel	15 00
No. 2, busheling	5 00
Boiler plate	12 00
Stove plate (ton)	20 00
No. 1 machinery cast	25 00

Sap Buckets Moving Well

Montreal.

The sap season being now well at hand, sales of sap buckets, spouts and syrup cans are being made in good volume. Following are the prices on both the buckets sized in the older method and those of Imperial measure, as some manufacturers are making them this season in 1 gallon, 1½ gallon and 2 gallon sizes.

SAP BUCKETS.—No. 7, \$20.13 per hundred; No. 8, \$21.88; No. 9, \$24.50; No. 12, \$26.25; No. 16, \$31.50.

1 gal., \$21.88; 1½ gal., \$26.25; 2 gal., \$31.50 per hundred.

Eureka, \$16.50; Perfection, \$25; Sterling, \$38 per thousand.

Square syrup cans, \$26 per hundred.

No Change in Eavestrough, etc.

Montreal.

No change has been made in the prices of eavestrough, conductor pipe or elbows since the new prices of last month. Dealers are well stocked on these lines and report that their agents are not placing their orders for spring requirements in as great volume as in former years. However, with prices slightly lower than last year, sales are likely to become larger in the near future, the consuming demand commencing in the early spring months. Present prices are as follows:

EAVESTROUGH—

O.G. Square Bead—

	Per 100 ft.		Per 100 ft.
8 in.	15 90	15 inch	28 80
10 in.	17 70	18 inch	36 80
12 in.	21 20		

O.G. Round, and Half Round—

8 in.	16 90	15 inch.	29 80
10 in.	18 70	18 inch	37 80
12 in.	22 20		

Discount 50/10% off list.

CONDUCTOR PIPE—

	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00

Discount 50/10% off.

CONDUCTOR ELBOWS—

Plain round or round corrugated—

2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch.	29 00

Discount 50% off.

Range Boilers More Active

Montreal.

More activity was shown in the past two weeks in range boilers than in the previous quiet months. Actual sales are still small, but bookings are now coming to hand and with a fair amount of building to commence a good amount of business is expected in range boilers along with other plumbing supplies. Prices remain unchanged and are quoted as follows:

RANGE BOILERS—

	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	
35-gallon	15 00		
40-gallon	17 00	19 00	
52-gallon	24 00		
66-gallon	32 00		
82-gallon	42 00		
100-gallon	50 00		
120-gallon	60 00		

Radiators and Boilers Quiet

Montreal.

Dealers in radiators and boilers are experiencing a quiet period at present. However, the outlook for spring is encouraging, many contracts already in hand for later building activities. One manufacturer stated to Sanitary Engineer that his firm had equally as many prospects at present as generally come to hand by the middle of March in other years. Prices show no change since the revised list at the beginning of the year and are as follows:

Revised radiator list prices fare for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 40% for hot water and 41% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 30%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10. 50 off list.

Square or sectional hot water or steam boilers, 15-in., list price.

For Ontario Government trimmings add 5 per cent. to list.

Square or sectional water boilers, 19-in to 36-in., 2½ per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., list price. Ontario Government trimmings, add 5 per cent.

Square or sectional water or steam boilers, 48-in., list prices. Ontario Government trimmings, add 5 per cent.

Round steam boilers, standard trimmings, 5 per cent. off. Ontario Government trimmings, list price.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

No Change in Compression Goods

Montreal.

There has been no change in prices made on the different lines of compression goods. Business is seasonably quiet, and of a sorting order. Following are the present prices:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard..	34%
Roundway stop and waste cocks, standard	34%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard..	5%
Gate or straightway	Net
Jenkins globe	10/7%

Cotton Waste Unchanged

Montreal.

Prices on cotton waste are unchanged from new quotations given last month. A slight improvement is noted in the last week on sales, and a gradual increase is expected as the season advances. Following are the quotations:

Cream, Polishing	0 22
WHITE	
XXX	0 18½
XX	0 17½
X	0 16½
XLCR	0 16½
Empire	0 15½
X Press	0 13½
6X Special	0 12

COLORED

Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

WOOL PACKING

Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS Washed and Sterilized.

White Cotton	0 20
Colored Cotton	0 15
Above lines subject to trade discount for quantity.	

Oakum Now 9c Per Pound

Montreal.

Plumbers' oakum is now quoted at 9 cents per pound, or \$4.50 in 50 pound bales. An extra cent is charged for broken bales.

No Change in Soil Pipe

Montreal.

Soil pipe continues quiet, although a slight improvement is noted over the previous quiet months. Prices are also unchanged, and the following are the present quotations:

SOIL PIPE (medium and extra heavy)—
2, 3, 10%; 5 and 6-inch, 15% discount.
4-inch, 20% discount.
8 inch, add 20% to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

More Activity in Wares

Montreal.

Sales of enamelled ware have increased during the past two weeks, and prospects for a good spring demand are in evidence. Present sales are confined to actual needs of the dealers, but the future building activities have a promising aspect. No change has been made in prices and they are as follows:

Sinks, roll rim, 18x30 in.	19 55
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 38 \$6 29 \$6 20
18 x 30	7 40 7 31 7 22
20 x 30	8 41 8 33 8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to	
30 in, wide	\$43 69
Bath tubs, 5½ feet	48 54
Lavatories—	

17x19" Apron F139 or P4045	13 00
18x24" Apron F154 or P3845 or P3847..	20 06
18x21" Apron F169 or P4205	14 96
17x19" Roll Rim, F241 or P4345	10 71

Closet Sales Also Improve

Montreal.

Relative to enamelled ware, closet sales also show an improvement over the past winter months. Following are present prices:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl.....	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe.....	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud....	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60

Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Ingot Metals Slightly Easier

Montreal.

Conditions on ingot metals are stated to be still very dull. Quotations are a little easier on some metals, and while the price changes are not great, it is quite evident that improvement is still to be looked for.

TIN.—Tin has shown recent fluctuations up and down with little ultimate change in present prices. Production is being curtailed owing to present values. But with consumption light, this has no immediate effect on the market. Local price 38½ cents.

COPPER.—This metal is a little easier in New York, and producers are inclined to shade prices. Export trade is reported good, but local demand is very quiet. Electro 19 cents, casting 18½ cents.

SPELTER.—The market in spelter in the United States is still weaker, having touched the new low point of \$4.90. This means absolute loss in producing at this price, and the U.S. Government may have to impose a duty on this metal. The European market is fairly steady, and foreign spelter is offered at reasonably low prices. Local price 8 cents.

LEAD.—Lead is the weakest metal on the list, having touched £19 in London and \$4.15 in East St. Louis. Indications at present are that even a lower price may be reached. Local price easier at 6¾ cents.

ANTIMONY.—Little demand is shown for antimony, the market remaining dull and quiet. Local price 8 cents.

ALUMINUM.—This metal is also very quiet with nothing new to report. Local price 34½ cents.

TORONTO

TORONTO, February 26.—Prices are holding unchanged on most lines of plumbing and steamfitting goods, and few alterations are noted. The lead market continues to show declines, and though no further change has been made in lead pipe, calking lead is easier and solders show some lower quotations. Ingot metals are still dull and weak, and fluctuations are a daily occurrence in the tin markets. Copper shows no improvement while lead prices continue to recede. No changes have been made in the prices of wrought pipe or fittings, and quotations on soil pipe, eavestrough, radiators, range boilers and compression goods are maintained. Bar iron and steel show no further change and are quiet, and the same may be said of sheets and plates. The scrap metal market features no change of importance and continues quiet. Wares and closets remain unchanged from previous quotations and sales are lighter.

Although sales on most lines are now quieter a fair amount of business is reported for the past month, and the mild weather has enabled many building operations to be finished that would ordinarily not have been completed until later on in the season.

Wrought Pipe Firm

Toronto.

No price changes have been made on wrought pipe and list No. 48 is being used. Wholesalers stated that they have experienced a very good demand for the season of the year, although sales are falling off lately, but they expect an increase of business will be shown in a few weeks when the spring trade starts. Stocks are in much better condition now than they have been for a long time. Following are present quotations:

LIST NO. 48.

PIPE—WROUGHT

Standard Butt Weld Pipe
Per 100 Ft.

	Steel	Gen.	Wrought Iron
	Blk.	Galv.	Blk.
1/4	\$ 6 50	\$ 8 50	\$ 5 91
3/8	5 31	7 41	5 91
1/2	5 31	7 41	5 91
3/4	7 10	8 63	7 95
1	8 80	10 87	9 95
1 1/4	13 01	16 07	14 71
1 1/2	17 60	21 74	19 90
1 3/4	21 04	25 99	23 79
2	28 31	34 97	32 01
2 1/2	44 75	55 28	50 00
3	58 52	72 29	66 00
3 1/2	74 06	90 62	82 00
4	87 75	107 37	98 00

Standard Lap Weld Pipe
Per 100 Ft.

	Steel	Gen.	Wrought Iron
	Blk.	Galv.	Blk.
2	\$32 01	\$38 67	\$35 71
2 1/2	48 26	58 79	54 11
3	63 11	76 88	70 76
3 1/2	75 90	92 46	85 10
4	89 93	107 55	100 83
4 1/2	1 05	1 29	1 30
5	1 22	1 50	1 52
6	1 58	1 95	1 97
7	2 06	2 53	2 53
8L	2 16	2 66	2 66
8	2 49	3 07	3 07
9	2 98	3 67	3 67
10L	2 77	3 41	3 41
10	3 56	4 39	4 39

Fittings Quieter

Toronto.

Pipe fittings show no further change in prices and remain at the declines made a month ago. Stocks are reported to be adequate for ordinary demands. Sales are lighter now, but are seasonable. Following are quotations:

PIPE FITTINGS

Cast iron fittings	10%
Plugs	20%
Bushings	25%
Unions, 1/4 in. to 2 in.	35%
Do., 1/2 in., 2 1/2 in. to 4 in.	30%
Dart-Unions, blk., 1/4 in. to 2 in.	20%
Do., 1/2 in., 2 1/2 in. to 4 in.	8%
Do., galvanized, add to black	30%
Nipples, black and galvanized, 1/8 to 4 in.	50%
Do., 4 1/2 in. and larger	40%
Do., running thread	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 60	0 75
Class B	0 26	0 36
Class C	0 17	0 26

Soil Pipe Quiet

Toronto.

No change has taken place since the early part of the year in soil pipe prices. Sales have not been large, but business is reported moderately fair for the time of the year. Stocks are said to be in fair shape. The following are quotations on pipe and fittings:

SOIL PIPE (medium and extra heavy)—

- 2 and 3 inch, 10%.
- 4 inch, 20%.
- 5 and 6 inch, 15%.
- 8 inch, add 5%.

FITTINGS—

- 2 to 6 inch fittings, 40%.
- 8 inch fittings, plus 5%.

Bar Iron Unchanged

Toronto.

Business does not show much change in iron and steel, and sales are small at present. Buying has been largely restricted, it is believed, to immediate requirements, and the opening up of the spring activity will probably see a good demand as stocks are reported low and purchasing has been deferred. Prices show no quotable change, and are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter...	\$ 5 25
Common bar iron, 3-16 in. and lighter...	5 25
Common bar iron, 1/4 in. and heavier	4 75
Angle base	4 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 25
Spring steel	12 75
Mining drill steel	28 00
Common cast tool steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Radiators Hold Firm

Toronto.

No changes have been made in discounts on radiators and hot water boilers, and 40 per cent. off list is still quoted for hot water, and 41 for steam. Business is quieter with smaller sales. Prices are the following:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 40% for hot water and 41% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%.

No Change in Wares

Toronto.

Prices are held unchanged on wares. Business is reported seasonably quiet now, but prospects are believed to be very favorable this coming season for an increased building construction and a larger demand for all lines of wares. The following are present quotations:

Bath tubs, 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	\$16 25
Do., do., 5 1/2 ft., net.	17 50
Lavatories—	
18x24" Apron F154 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205.....	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345.....	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$7 60 \$7 70 \$7 80
20 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Closet Prices Holding

Toronto.

Sales continue fairly light on closets and fittings, and little change is noted. Prices are held unchanged and are as follows:

Closet, standard outfit	\$82 00
Do., with post hinge seat	33 00

17x10" Apron F139 or P4045	15 30
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, seat and cover...	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Conductor Pipe Dull

Montreal.

Conductor pipe and eavestrough are being held at the prices set at the beginning of this year. There is said to be no difficulty in filling orders from stocks which are ample. The demand is very light. Present quotations are the following:

TROUGH (Eave)

O. G., Square Bead and half round.	Size in girth:	Per 100 ft.	Per 100 ft.
8-in.		\$15 90	15-in. \$28 80
10-in.		17 70	18-in. 36 50
12-in.		21 20	
Less 50/10 per cent.			

PIPE (Conductor)

Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths.
2 in., in 10-ft. lengths, list	\$18 40
3 in., in 10-ft. lengths, list	22 30
4 in., in 10-ft. lengths, list	29 60
5 in., in 10-ft. lengths, list	40 00
6 in., in 10-ft. lengths, list	49 00
Less 50/10%.	

Corrugated Elbows Hold

Toronto.

There is only a small demand now for conductor elbows and prices are holding unchanged. Quotations are as follows:

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 50%.	

Compression Work Held

Toronto.

The demand for compression work, valves and bibbs, shows little change. Wholesalers report a medium sale for standard goods. Quotations are holding at the recent changes and are the following:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	30%
Do., Fuller	30%
Flatway stop and waste cocks, standard	34%
Roundaway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	10%
J.M.T. C.	20%
Gate or straightway	7/10%
Jenkins Globe	10%
Radiator valves, standard	28%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Solders and Zinc Sheets Lower

Toronto.

Lead products are steadier and show no further change, except solders, which

are slightly shaded and are about one cent per pound lower. Zinc sheets also show a small reduction. Stocks in wholesalers' hands are reported to be ample for normal requirements. Sales are fair for the season of the year. Outside primary lead markets have developed a lower tendency, and the reductions this month on U.S. markets amount to \$7 a ton. The production, in spite of curtailment, is stated to be gaining on consumption. The following are the prevailing quotations here:

Lead pipe, list, per lb.	0 12½	
Lead waste pipe, list, per lb.	0 13½	
Do., over 8 in., list, per lb.	0 14½	
Lead pipe is subject to discount of 10%.		
Lead traps and bends		Net
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½	
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.	0 36	
Do., 40-60	0 26½	0 23
Do., 50-50	0 29	0 31
Do., strictly, lb.	0 26	
Do., commercial, lb.	0 24	
Do., guaranteed, lb.	0 23	
Do., wiping, lb.	0 22½	
Zinc sheets, per lb.	0 16	
Calking lead	0 08	0 09

Range Boiler Prices Hold

Toronto.

Range boilers show no change in prices. A lighter demand is reported by wholesalers and stocks are in fair condition. Quotations are the following:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

No Change in Boiler Tubes

Toronto.

The movement of boiler tubes is reported to be smaller than it should be at this time, although improving slightly. Quotations are unchanged and are as follows:

BOILER TUBES—	Seamless	Lapweld
1 inch	\$28 00	\$.....
1¼ inch	32 00	
1½ inch	33 00	
1¾ inch	35 00	
2 inch	35 00	28 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	46 00
4 inch	92 00	60 00

Little Change in Sheets

Toronto.

Sheets and plates show very little change locally, either in quotations or demand. Business continues very light, although a slight improvement is reported in some quarters. Taken altogether, there appears little disposition to buy except for immediate needs and stocks on hand are reported to be lighter than usual. Reports from U. S. markets indicate that the independent mills there are cutting prices below the Industrial Board level, but without attracting any extra business of importance. Quotations here are the following:

BLACK SHEETS		
14 gauge	6 30	7 70
16 gauge	6 40	7 75
18-20 gauge	6 75	7 80

22-24 gauge	6 80	7 85
26 gauge	6 85	7 90
28 gauge	7 00	8 00

PLATES

10 gauge plate	6 20
12 gauge	6 25
14 gauge	6 30
16 gauge	6 40

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

An extra 10c per 100 lbs. is also charged on sheets 36 inches wide.

GALVANIZED SHEETS

Premier and Apollo

10¾ oz.	9 40	10 30
U.S. 28 gauge	9 00	10 00
U.S. 26 gauge	8 70	9 75
22 and 24 gauge	8 55	9 50
18 and 20 gauge	8 40	9 35
16 gauge	8 25	9 20
12 and 14 gauge	8 20	9 15

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Small Demand Corrugated Sheets

Toronto.

Sales on corrugated sheets are stated to be below normal at the present time. An increase in demand is expected shortly when the spring season begins. There has been no further change in quotations, which are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	10 50
No. 26 gauge	11 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7½%.	

White Lead Reduced \$2

Toronto.

White lead in oil has been reduced \$2 per cwt., and the new quotation is \$15.30 per 100 pounds, for less than ton lots. Red lead prices are unchanged.

Stove Bolts Reduced

Toronto.

Stove bolts have been reduced in price, and are about 12 per cent. lower. The new discount is 62½ per cent. off list.

Stove Pipe Wire Reduced

Toronto.

A reduction of 50 cents per 100 pounds has been made in the price of stove pipe wire, and it is now quoted at \$9.50 for No. 18, and \$10 for No. 19.

Bolts and Nuts Lower

Toronto.

New discounts on bolts and nuts show lower prices on these goods. Following are the new quotations:

Carriage Bolts, \$1.00 list, ¾ in., dia. and smaller, 6 in. and shorter	25%
Do., longer lengths	10%
Do., 7-16 in. and larger	15%
Machine Bolts, ¾ in. dia. and smaller, 4 in. and shorter	40%
Do., ¾ in. dia. and smaller, longer lengths	15%
Do., 7-16 in. dia. and larger	20%
NUTS, 2 in. and smaller—	
Square—Blank, add to list	\$1 25
do., Tapped, add to list	1 75
Hexagon—Blank, add to list	1 75
do., Tapped, add to list	2 25

New Wire Base and "Extras" Toronto.

A reduction has taken place in the price of wire, and the new base price for bright wire, and also for annealed, is \$5 per cwt. A change has been made in the gauge extras, and the extras for tinning, coppering, wrapping, etc., have been revised and are as follows:

Wire Gauge Extras—No. 0-9, Base; No. 10, 6c; No. 11, 12c; No. 12, 20c; No. 13, 30c; No. 14, 40c; No. 15, 55c; No. 16, 70c.

Soft Drawn Bright—No. 0-9 gauge, per 100 lbs., 25c extra; 10-13 gauge, 50c extra; 14-16 gauge, 70c extra.

Coppering and Liquor Finish—14 gauge and heavier, \$1; 15-16 gauge, \$1.50.

Tinned Wire—12 gauge and heavier, \$2; 13-15 gauge, \$2.50; 16 gauge, \$3.

Wrapping Tinned and Coppered—Papering, per cwt., 25c; Burlapping, 25c; Papering and Burlapping, 50c.

Oakum—No Further Change

Toronto.

Plumbers' oakum is holding at the recent reduction and is quoted at \$4 per bale of 50 pounds or 10 cents per pound in small quantities. The present demand is not heavy.

Cotton Waste Quiet

Toronto.

Cotton waste is holding unchanged. Stocks are stated to be ample, and sales are light. The present quotations are as follows:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 21
XX	0 19½
X	0 17½
XX, grad.	0 17½
XLGR	0 15
X Empire	0 16
X Press	0 13½
XC	0 16½
COLORED	
No. 1	0 14½
No. 7	0 13½
No. 1A	0 12½
No. 1B	0 11½
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

Above lines subject to trade discount for quantity.

Ingots Quiet; Lead Lower

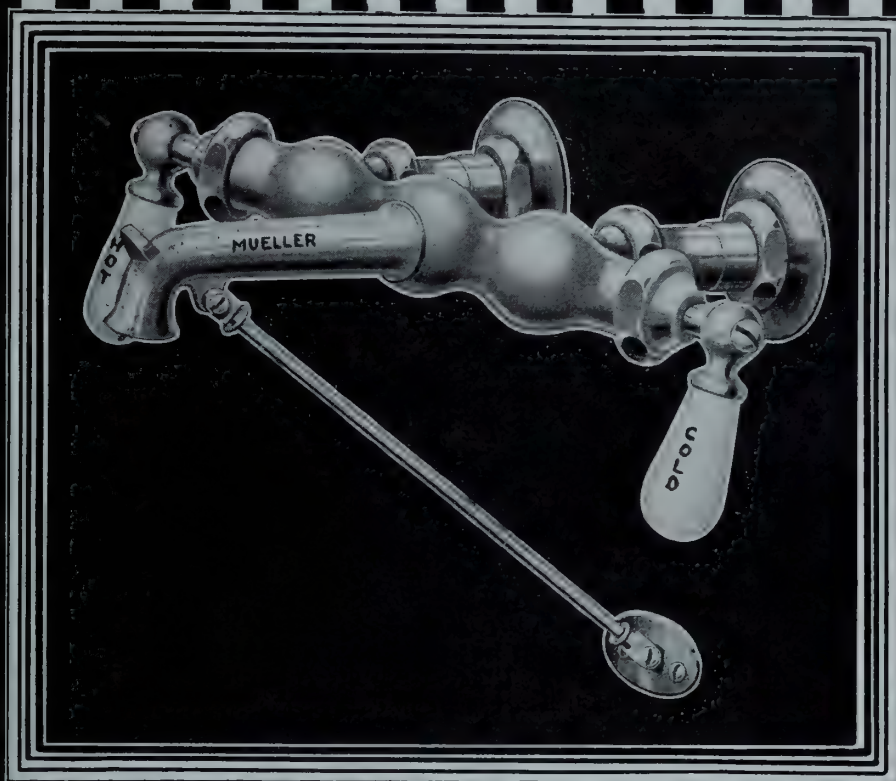
Toronto.

There has been little change in ingot metals locally. Exceptional dullness is reported in all metals, Lead is easier, and shows a decline, but other metals are practically at previous quotations.

TIN.—The tin market is very dull almost everywhere. The English market is very erratic; up one day and down the next. London prices showed an up trend which has not been maintained, and prices are expected to sag again. Sales are light and prices locally are unchanged at 43 cents.

COPPER.—The better interest lately shown in this metal has disappeared again, and the demand is light as a result of the intermittent character of business in manufactured copper. Price cutting on U. S. markets is not believed to have increased sales greatly. London markets are lower. Quotations here are holding at 19 cents for casting copper.

LEAD.—This metal continues to de-



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cline in value. Reductions during the month on United States markets amounted to \$7 a ton. English markets, while steadier, are also easier and quotations are down to the average price for 1913. It is quoted here at \$6.50; a decline of 50 cents since last report.

SPELTER.—Business is quiet and dull in spelter. Outside markets are easier, but the demand is small. Prices here are unchanged at \$7.

ANTIMONY.—No changes are reported in antimony and quotations are held at 8 to 9 cents.

ALUMINUM.—No new features are shown in aluminum, and the market is listless. Prices remain at 35 to 37 cents.

Scrap Metals Still Dull

Toronto.

There is still a dull tone to the waste metal market. The demand for cast iron

scrap has been better than for steel scrap. Prices are practically unchanged. Red and yellow metals are in slightly better demand. Business is very light in rubber scrap. The following are nominal quotations for fairly large quantities:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	19 00	20 00
Scrap pipe	8 00	9 00
Yellow brass	6 00	7 00
Red brass	10 00	
No. 1 machinery cast	24 00	25 00
Heavy melting steel	15 00	16 00
Heavy copper	10 50	11 50
Light copper	8 00	9 00
Scrap zinc	4 00	4 50
Light brass	4 00	4 50
R.Rd. wrought iron, No. 1, per gr. ton	13 50	14 50
Heavy lead pipe	4 00	4 50
Old rubbers, boots and shoes ..	3 00	3 50
Overshoes, lumbermen's rub. boots	2 00	2 50
Bicycle tires	0 75	1 25
Automobile tires	0 50	1 00
Tea lead	2 00	2 25

WINNIPEG

WINNIPEG, Feb. 26.—There are few price changes to record in plumbing lines, and nearly all of them are to a lower level.

Among the lines reduced are bar lead and soldering coppers. Iron and steel, pipe and pipe fittings, sheets, both black and galvanized are holding steady in price. A slight increase in business is noted, and prospects are believed to be good for the coming season.

Saunders' Pipe Cutters Down

Winnipeg.

The price of Saunders' pipe cutters has been reduced and these are now quoted at 20 per cent. off list.

Lead and Solder Lower

Winnipeg.

Reductions have been made on pig lead, bar lead and block lead. Solder is also lower and the following are latest quotations:

Pig lead, per lb.	0 08
Bar lead, per lb.	0 08 1/4
Block lead, per lb.	0 08 1/4
Solder—	
Tinkers, per lb.	0 45
Wire, per lb.	0 45
Half and half, case lots	0 31
Do., less quantities	0 32

Soldering Coppers Lower

Winnipeg.

Prices have again been reduced on soldering coppers, and the following are the new prices quoted on these:

1 lb., per lb.	0 60
1 1/2 lbs.	0 55
2 lbs.	0 54
2 1/2 lbs.	0 53
3 and over	0 52

Pipe Prices Hold

Winnipeg.

No changes have been made in pipe prices, and supplies are now in better shape. Sales are rather light at the present. Following are quotations:

	Per 100 ft.	
	Blk.	Galv.
1/8 in.	\$ 6 21	\$ 8 69
1/4 in.	5 94	8 28
3/8 in.	6 12	8 46
1/2 in.	8 24	9 95
3/4 in.	10 22	12 51
1 in.	15 08	18 50
1 1/4 in.	20 43	25 02
1 1/2 in.	24 48	29 93
2 in.	32 94	40 28
2 1/2 in.	53 33	65 39
3 in.	70 07	86 40
3 1/2 in.	88 20	107 10
4 in.	104 40	126 90
4 1/2 in.	124 20	152 10
5 in.	144 90	177 30
6 in.	188 10	229 50

SYSTEMATIZING THE OFFICE

Continued from Page 29.

papers in this section and see what jobs you want to place them on.

In the seventh section, put your copies of Requests for Quotations, or any letters you write or receive regarding quotations in which you will be interested in the near future.

In the eighth section keep all your monthly statements, which your bookkeeper furnishes you regarding the condition of your business. In this compartment a list of all outstanding accounts should also be kept. Review

these frequently in your spare time. Make comparison of one month with another, see in what departments you are making progress, and where progress is not being made. Take steps to correct the existing evils, and in this way you will have the important points about your business always fresh and clear in your mind. See that your collections are kept up to the minute.

In the ninth section, put your papers concerning matters not covered by the preceding sections, which you may need in the near future.

In the tenth and last section, have all invoices placed that are to be approved

by you before being passed to the bookkeeper for payment.

The use of this Desk Organizer is the best thing we can recommend for keeping things in their place and out of the way. Too frequently we see men of many and great responsibilities going over a matter with their desk covered with papers. They stop to look for something, and immediately they are distracted by the sight of some other paper. They drop what they are doing, turn to the other matter, and thus they go from one thing to another, finishing nothing. When you start in on one thing, first be sure you have before you all the information available on it. Concentrate on that matter until it is finished, or until you have gone as far as possible with it. The greatest foe to concentration is distraction, and there is nothing that will distract you quicker than papers on other matters lying under your eye.

So the Desk Organizer will do for you these three things. It will keep your desk clean. It will make a place for everything, and it will help you to promptly finish what you start. Locating the Desk Organizer in the upper left-hand drawer puts it right under your hand, where it is always in reach, and its contents always in sight.

Estimating and Contract Forms

Drawer number 2, which is the middle drawer on the left-hand side, is for your estimating and contract forms. We find that a legal sized folder can be purchased from a stationer having in it twenty-six to thirty-one divisions. This folder is 15 inches long, and 9 1/2 inches wide. It is not quite as long as the estimating forms, but it will keep each set of forms together, and will keep them clean and smooth, and they will be right under your hand when you come to figure a job. In the same folder you will have your contract forms, so that you can go right through, make up all the figures on your estimate, and select the proper form of contract for your stenographer to fill in.

Drawer number 3, we have left open for whatever personal papers you wish to keep in your office.

Drawer number 4, which is the wide drawer in the middle, should hold all your desk tools and supplies. These include pencils, slide rule, scale rule, pen-holders, pens, rubber bands, clips, eraser, etc. A tray with suitable divisions can be bought for these, or small paper boxes can be used, being held in place by thumb tacks thrust through the bottom of the paper box into the drawer bottom. This will give an orderly arrangement. This tray should be placed right in the front on the left-hand side. It will not take the full width of the drawer, and beside it should be your Price Book. Back of these you keep scrap paper and scratch pads.

Continued in Next Issue.

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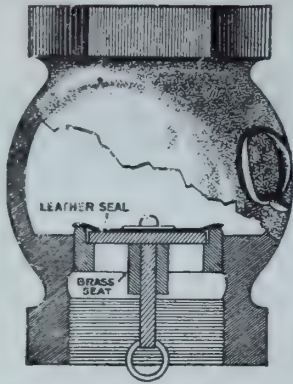
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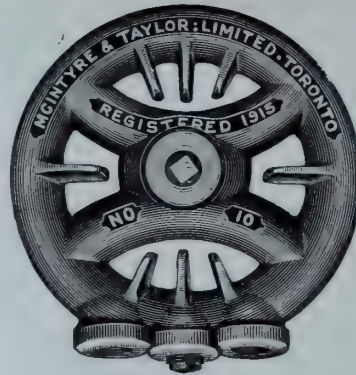
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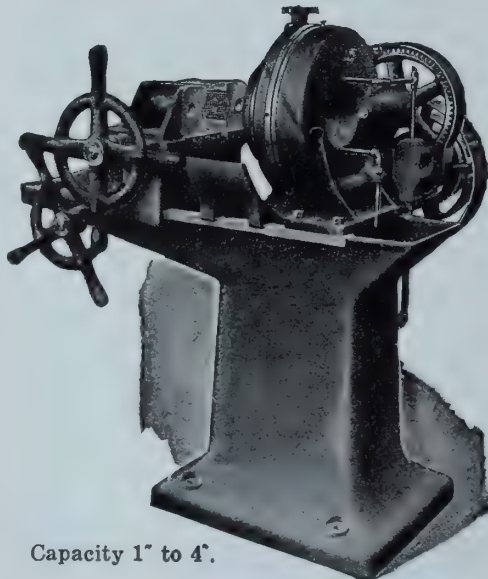
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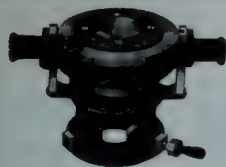
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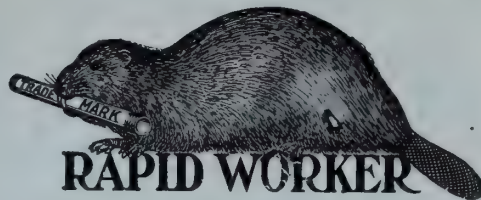


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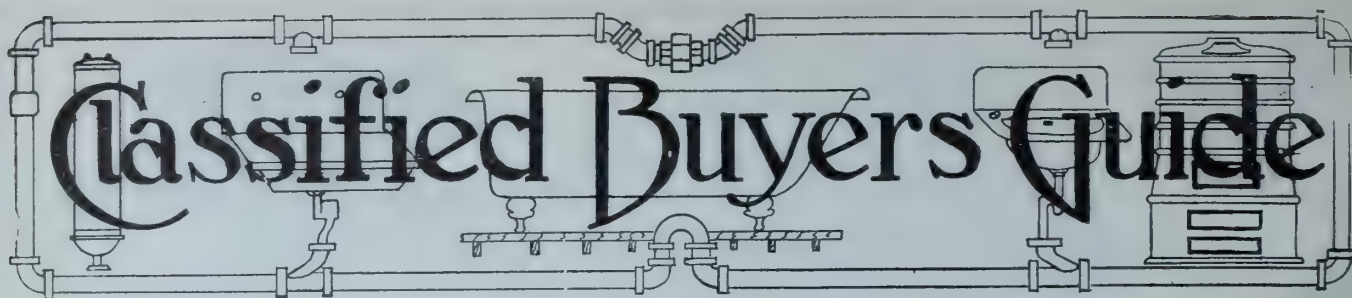
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Empire Mfg. Co., Ltd., London and Toronto.

H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope

PACKING

Empire Mfg. Co., Ltd., London and Toronto.

Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.

C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

Beaton & Corbin Mfg. Co., Southington, Conn.

W. H. Cunningham & Co., Toronto, Ont.

PIPE, BLACK AND GALVANIZED

Canadian Tube & Iron Co., Ltd., Montreal.

Empire Mfg. Co., London and Toronto.

James Morrison Brass Mfg. Co., Toronto.

H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.

Empire Mfg. Co., Ltd., London and Toronto.

Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS

Wolverine Ltd., Toronto, Ont.

James Morrison Brass Mfg. Co., Toronto.

Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.

Empire Mfg. Co., Ltd., London and Toronto.

James Morrison Brass Mfg. Co., Toronto.

H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

Toronto Hardware Mfg. Co., Toronto.

Warden King, Ltd., Montreal.

No. 4

"B. & C."



Automatic Air Valves

Every valve tested and guaranteed. Made from best brass, with cast brass base screwed and soldered on. Complete stock of "B. & C." 1 piece and split pattern floor and ceiling plates in stock.



English Blow Torch---2-3 Pint Size

Powerful Flame—No Pump Required—Burns Gasoline, Petrol or Benzoline.

Complete Stock of
"UBEL" SEMI-ROTARY
PUMPS, $\frac{1}{2}$ to $1\frac{1}{2}$



National Pipe Hanger

Fits any size pipe — Strong, enduring, economical — Saves time and money—100 ft. Rolls—Easy to carry.

Deliveries from Toronto Stock. Ask Your Jobber or Write Us.

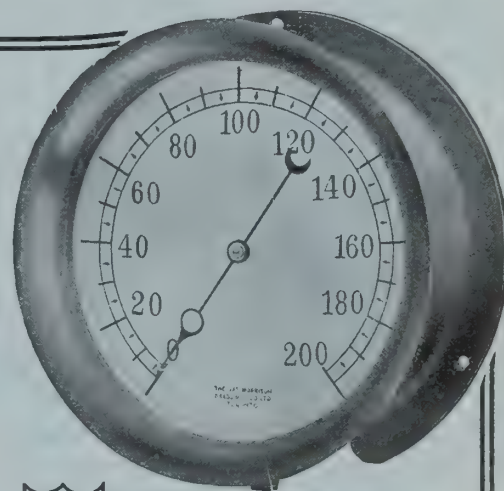
W. H. CUNNINGHAM & CO.

269 West Richmond St. -- Toronto, Ont.

(Exclusive Agents for Plumbing and Heating Specialties)

Sales Built on Confidence

Morrison Gauges



include gauges for every conceivable purpose — for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.

James Morrison Brass Mfg. Co., Ltd.

93-97 Adelaide Street West, Toronto

Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.

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Borden Canadian Co., Toronto.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. McDougall & Co., Ltd., Galt.

PUMPS

The Westco Pumps Limited, Toronto.
W. H. Cunningham & Co., Toronto, Ont.

PUMPING SYSTEMS, AUTOMATIC

The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RANGE BOILERS

The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
The Simplex Mfg. Co., Chicago, Ill.

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Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE

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Canada Metal Co., Ltd., Toronto.
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C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
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United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS

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Gurney Foundry Co., Limited, Toronto.

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Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams & Co., Brooklyn, N.Y.

TORCHES

W. H. Cunningham & Co., Toronto, Ont.

UNIONS

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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

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Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

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The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
The Westco Pumps Limited, Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.



Continuous Sales

Display Desolvo on your counter, and it will sell itself. Desolvo mixes with cold water, and generates heat itself to thaw frozen pipes. It is your one best bet as a business-builder. Sell your prospect his first can and continuous sales are sure to follow. Ask about K.K.

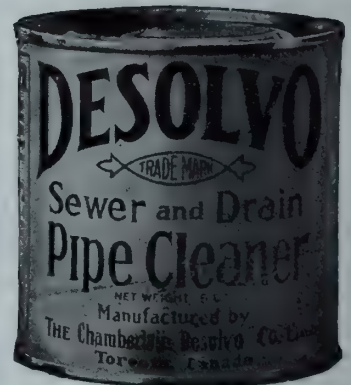
At Your Jobbers

Chamberlain Desolvo Co., Limited

109 Church Street, Toronto

General Offices

Pittsburgh, Pa.



Eastern Canada Representative:
Richardson & Bureau, 55 St. Francis Xavier St., Montreal
Ontario Representative:
L. F. Mayne, 375 Trafalgar St., London, Ont.
Western Representative:
N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B. C.

Extending the Uses of Your Product by Informing Dealers

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

When writing advertisers please mention that you saw their advertisement in the *SANITARY ENGINEER*

**No
Knocks**



**No
Regrets**

We test our RIVETED RANGE BOILERS before they are galvanized, and they do not leak.

Toronto Hardware Manufacturing Company, Limited

**Over 60,000 Daisy Hot Water Boilers
Now in Use—Are *You* Selling Your Share?**



Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO

A Stirring Instalment of Heming's Famous Story

ARTHUR HEMING continues his remarkable story of Canada's Northland in March 1 MACLEAN'S MAGAZINE. In "Wild Animals and Men" he tells how he and Oo-Koo-hoo tracked and trapped wolverine, lynx, and other wild animals, and tells fascinating stories of battles of wits between the hunters and the hunted. The wiles of the Indians and half-breeds are pitted against the amazing, almost superhuman craftiness of the animals—and sometimes the denizens of the forest wilds outwit their human antagonists.

Fun at Opening of Parliament

J. K. Munro sat in his seat in the Press Gallery, Monday, February 14, when Parliament opened, and looked down with the good-natured tolerance and contempt of an iconoclast and a satirist at the proceedings. The members invariably amuse "J. K."; it takes a really big man to elicit more than scant praise from his sophisticated pen. His March 1 article is entitled: "Funny, as the Owl is Funny."

Other Big Features and Fiction

"Canada's Fur Future," by Agnes C. Laut. Telling what a potential gold mine Canada has in her fur industry, properly conserved and exploited.

"Goldwin Smith," by James Mavor, Ph.D. The personal side of the "Sage of the Grange," the man who was tutor to King Edward VII, before coming to Canada.

"More Political Memoirs," by Col. George H. Ham. Further stories of the "Solons of the Eighties," and Ottawa 30 or 40 years ago.

"Pawned," by Frank L. Packard. The story of a triple regeneration—in this instalment John Bruce declares his love for the "Pawnshop Girl."

"The Man Who Knew Too Much: The Bottomless Well," by Gilbert K. Chesterton. This Near-Eastern well and a revolving bookcase figure in a baffling murder story, handled by England's master of fiction.

"The Lady at the Door," by Barker Shelton. A girl takes a law course, graduates—but that doesn't mean clients. But she gets a partner—and for life.

"The Millionth Chance," by Henry Holt. An adventurous sea story, with a girl skipper and a man who won her respect—and even her love.

Review of Reviews

Split Among the Socialists—
Joseph Gollomb
New Wonder City—
Agnes C. Laut

Where Humanity Started—
New York "Times"
World's Worst Failure?—
Harold Trowbridge Pulsifer

Birth Control and War—
Harold C. Cox
A Pugilistic Apollo—
Heywood Broun

MARCH 1st ISSUE on All News-stands 20c

MACLEAN'S
"CANADA'S NATIONAL MAGAZINE"



Kerosene Water Heater



Here is a REAL Kerosene Water Heater.

Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give SATISFACTORY SERVICE.

Once sold — stays sold — no come-backs.

The price is low — the season is here — send for descriptive folder to-day.

The Hotstream Heater Company

"Makers of heaters that heat"
Cleveland, Ohio

(We make a complete line of single and double copper coil, cast-iron coil, and sectional gas water heaters.)

W. H. CUNNINGHAM & CO.,
269 Richmond St. West, Toronto
Canadian Representatives

BUILD FOR 100% OF COMFORT

This means pipe your home complete from basement to roof, for modern, unfailing Gas Service.

Have Gas for Room Heating and Water Heating.

Cooking to be done on a modern Gas Range.

An outlet in the kitchen for a Gas Incinerator.

Also outlets are necessary for the laundry.

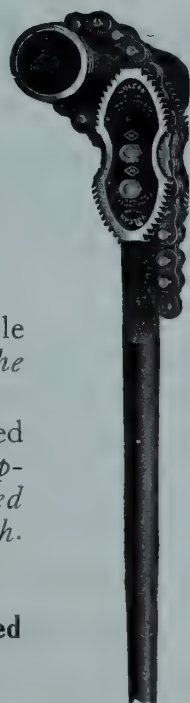
And Mantle Lights in every room.

You will never regret the slight additional outlay that Gas Service will cost you. And the time to install it is when you build.

The Services of our "New Building Bureau" are yours by calling—Ad. 2180

THE CONSUMERS' GAS COMPANY

Williams' Improved "Vulcan" Chain Pipe Wrench



Double-ended reversible jaws — *two tools at the price of one.*

Proof-tested and certified chain—*safety for the operator and guaranteed strength for the wrench.*

Ask for Booklet.

J. H. Williams & Co., Limited

"The Wrench People"

Formerly Canadian Branch of
The Whitman & Barnes Mfg. Co.

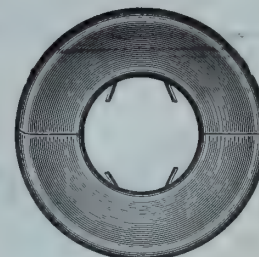
77 Thorold Road St. Catharines, Ont.



OPEN VIEW
NO. 10-A

The
CEILING
PLATE

that's
better



TOP VIEW
NO. 10-A

THE NO. 10-A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES $\frac{3}{4}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



Gem No. 4.



Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.



WIPING SOLDER
Lead Traps and Bends Sheet Lead and Calking Lead
HOYT METAL COMPANY
MONTREAL TORONTO WINNIPEG

Galvanized and Black Sheet Canada Plate

BRASS AND COPPER TUBES, RODS, SHEETS

Lists on Request. Shipments from Toronto Stock.

ONTARIO METAL PRODUCTS CO., LIMITED
PHONE PARKDALE 5200 TORONTO, ONT.

Do You Read These Advertisements?

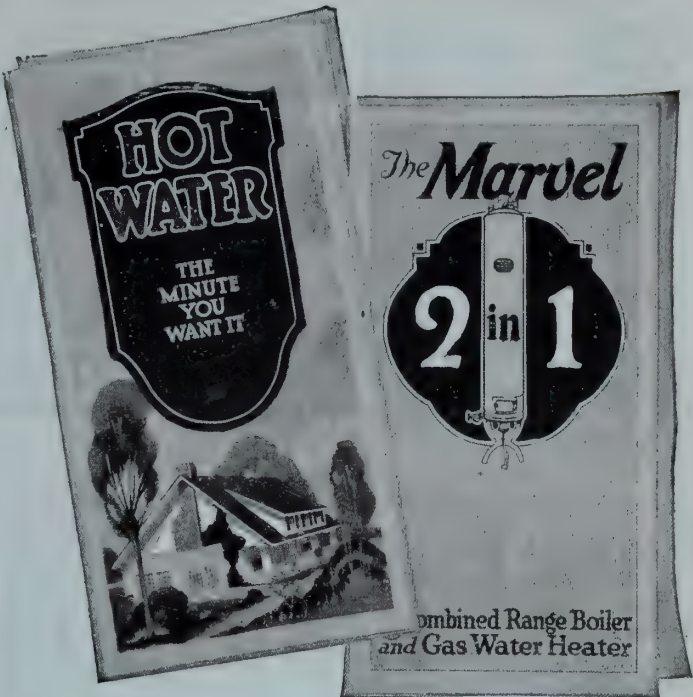
Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery—technical paper advertising—to present most effectively to you the leading features of its line.

These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

Don't miss your opportunities. These advertisements are interesting. Some are distinctly instructive, and a glance through them every month will keep you posted on the latest developments in Sanitary Engineer.

INDEX TO ADVERTISERS

Allison, K. B.	3
Amherst Foundry Co.....	Inside front cover
Anthes Foundry Co.....	Inside back cover
Atlas Engineering & Machine Co., Ltd...	8
Atlas Tank Works	48
Bastian Morley, Ltd.	47
Beaton & Cadwell	45
Borden Can. Co., Ltd.	39
Canadian John Wood Mfg. Co., Ltd.	9
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products	48
Chamberlain Desolvo Co.	42
Consumers Gas Co., Ltd.	45
Cunningham & Co., W. H.	41
Dennis Wire & Iron Works Co., Ltd.	7
Dominion Sheet Metal Corp., Ltd.	1
Dunham Company, Limited, C. A.	9
Empire Manufacturing Co..	Outside front cover
Fittings, Ltd.	48
Galt Brass Co.	Back cover
Hall & Sons, Ltd., John H.	38
Hotstream Heater Company	45
Hause Mfg. Co., Chas. F.	48
Hoyt Metal Co.	46
International Malleable Iron Co.	37
Jardine & Co., A. B.	8
Jenkins Bros., Limited	39
Kerr Eng. Co., Ltd.	6
Marks & Co.	48
McDougall & Co., R.	38
McIntyre & Taylor, Ltd.	38
Ministry of Munitions	5
Morrison Brass Mfg. Co., Ltd., Jas.	41
Mueller Mfg. Co.	35
Ontario Metal Products	46
Port Hope Sanitary Mfg. Co.	24-25
St. Louis Technical Institute	39
Standard Sanitary Mfg. Co.	12
Steel & Radiation, Limited	6
Steel Trough Machine Co.	48
Toronto Hardware Mfg. Co.	43
Wallaceburg Brass & Iron Mfg. Co., Ltd...	4
Warden-King, Limited	43
Williams & Co., J. H.	45
Wolverine, Ltd.	38



Send for these folders, to-day!

Clip the coupon below and let us send you these two beautiful illustrated folders. They cost you nothing but will give you a world of information—a big help in solving your heater problems.



The folder on the left tells how 25 to 40 gallons of steaming hot water can be automatically maintained in the home, ready for instant delivery at all connected faucets, by a tiny gas flame no bigger than the blaze of a match. No fuss. No muss. No complications. A simple and profitable installation that any plumber can easily understand.

The other folder describes our Marvel Non-Automatic, a combined range boiler and gas water heater that takes the place of the old "sore thumb" or side-arm contraption. The Marvel is the most economical non-automatic gas water heater made and gives absolute satisfaction.

Know these facts. They are important in your business. Clip the coupon now.

BASTIAN-MORLEY LIMITED
11 Hanson St. and Hillingdon Ave.
TORONTO, CANADA
Makers of Gas Water Heaters Exclusively

Send This Coupon !

Bastian-Morley Limited, Toronto.
Gentlemen:—Please send me illustrated folder describing your "Royal" Automatic and "Marvel" Non-Automatic Gas Water Heaters. Also send price list and give name of nearest jobber.

Name
Address
Town Province
(Tear Out This Coupon—Send It To-day)





WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal



Fittings Limited



Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Storage Tanks
Hot Water Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
105 Ritchie Ave.
TORONTO

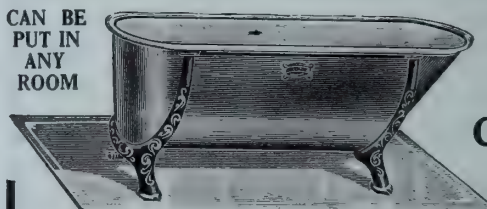
Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

CAN BE
PUT IN
ANY
ROOM



PROFITS IN COUNTRY TRADE

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal, Quebec and Eastern Representative.



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers

Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.

Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

FOR SALE—FLANGED AND FACED FITTINGS from 2½ in. to 8 in.; elbows, tees, cross tees, reducing tees and reducing elbows. At a very low price. American Plumbing Supplies, 14 Craig St. W., Montreal.

FOR SALE — CONTENTS OF WORKSHOP, full set of tinsmith's tools and machines, plumber's tools, 8 ft. brake, cornice maker's slitting shears, etc., almost new. Motor truck, ladders, etc. McClary Furnace agency. Good trade in plumbing and heating. First-class opening for live wire. Owner going into another line of business owing to ill-health. H. T. Andrews, Orillia, Ont.

THE CLIMATE OF SASKATCHEWAN

IS THE SEVEREST TEST A SEWAGE DISPOSAL
SYSTEM CAN BE PUT TO.

READ THESE LETTERS

PERFECTLY SATISFIED.

COPY. Stalwart, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Gentlemen:

I am perfectly satisfied with your system of sewage disposal.
See no room for improvement; no trouble at all.
Certainly a boon for the farmer, and all.

Yours very truly,
(Signed) W. H. ETTER.

ENTHUSIASM

COPY. Box 45, Imperial, Sask., Nov., 1919.
Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

Re your letter of November 19th, 1919, regarding the Septic Tank to take care of my sewage disposal.

Well, I may say that it has been very satisfactory in every way.

It is two years last August since it was completed, and I have never had any reason to even open the man-holes. So you see it must be working perfectly, and as to freezing, it has not frozen as yet.

As far as I know there are no objectionable features about the system, and I am in every way well satisfied with the system.

There is no system that could work better.

I cover up the filter bed and the pipe between it and the septic tank, also the septic tank, with chaffy straw about 6 or 8 inches deep in the Fall, so the snow and straw keep the frost out.

Perhaps it don't need it, but I like to take no chances.

I remain, yours truly,
(Signed) WM. J. SHAW.

WORKING FINE.

COPY. Kenaston, Sask., Nov. 25th, 1919.
Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In regard to my septic tank, I can highly recommend it, as it has been working fine ever since I have had the plant put in.

It has never frozen nor has it refused to work.

I must say that the system has given every satisfaction.

Wishing you every success.

I am, yours very truly,
(Signed) HUGO TIETJENS.

HAS NEVER TOUCHED IT SINCE INSTALLING.

COPY. Imperial, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

The system I have has been working satisfactory.

I have had nothing done to it since it was installed, and everything is in perfect order as near as I can see, in fact I have never given the system a thought.

(Signed) O. D. JOHNSON.

-SATISFACTION AND THEN SOME.

COPY. Duval, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

The sewage disposal system is giving good satisfaction.

So far I have had no trouble with it. So far I am well pleased with it.

(Signed) JOHN MCKENZIE.

COULDN'T IMPROVE ON THE ANTHERS SYSTEM.

COPY. Nokomis, Sask., November, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

I have answered the following questions.
So far I haven't had one particle of trouble.
I haven't anything to suggest.

(Signed) G. H. HUMMEL.

Is the system giving every satisfaction? Yes.

Does the syphon valve work perfectly? Yes, so far.

Have you had any trouble with freezing? None.

Are there any objectionable features about the system? Not any that I have found.

QUITE SURE IT'S ALL RIGHT

COPY. Hawarden, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In reply to your request, would say that we have found the septic tank very satisfactory, but we didn't lay enough of field tile to take care of seepage, as the sub-soil is very hard, and we were putting a lot of water through the system.

The syphon seems to do the work alright.

We had the main line freeze up coming near Spring, just in one place, about 6 feet of the main line where it runs close to my garage, and there was no snow lodged on that particular place.

I think the trenches should be covered with about 6 inches of horse manure in the Fall, so as to catch the snow, and there should be no danger of frost.

Hoping these few lines will be of some benefit to you.

I remain, yours truly,
(Signed) WEBSTER MOONEY.

PUT IT IN LATE IN THE SEASON, BUT

COPY. Cotton Woods, Nov. 28th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In answer to yours I might just say that so far the Septic Tank system of sewerage is a success.

I have not as yet found any deficiency in either construction or operation.

We have used the system for about six weeks, beginning just one week before freeze-up. It did not even get a fair chance, but as yet it has withstood the frost, being covered to the depth of six inches with clay earth. I spread strawy fresh horse manure over the disposal bed to a depth of one foot, and everything is working well so far.

I would highly recommend this system of sewage disposal to every farmer.

Sincerely yours, W. THOMPSON.

HASN'T FROZEN YET—AND NEVER WILL.

COPY. Abernethy, Sask., Nov. 26th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

In reply to yours of the 25th inst., I might say that regarding my septic tank installed last June, I have had absolutely no fault to find with either the material used or the workmanship, as it has thus far given perfect satisfaction in every way.

As far as I know, the syphon valve is working perfectly, as it has never given any trouble.

It has never frozen so far, but we have covered the septic tank and disposal field with about 1½ to 2 feet of horse manure, as I wish to give it every possible chance.

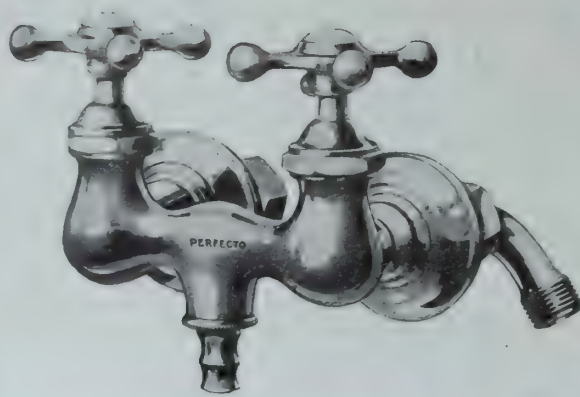
I have no fault to find, or suggestions to make to improve this system.

I am, yours truly,
(Signed) WM. FOSTER.

ANTHES FOUNDRY, LIMITED

TORONTO

WINNIPEG



PERFECTO Brass Goods

The PERFECTO "Two-to-One"
Guarantee Protects the Plumber

"ANY article of our make, with PerfectO Trade Mark on it, proving defective through inferior metal or improper workmanship on our part, will be replaced with *TWO* good ones at *no charge.*"

Made by the
Makers of
VITRO
NO TROUBLE
TANKS

That is the guarantee under which all PerfectO Brass Goods are sold to you. You can see that where satisfaction is concerned the makers of PerfectO Brass Goods leave nothing to chance.

This guarantee is an eloquent tribute to our faith and confidence in the quality of PerfectO Brass Goods. It is your final and complete protection against the remotest possibility of dissatisfaction.

GALT BRASS COMPANY, LIMITED
GALT **CANADA**

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, MARCH 15, 1921

No. 6



An Addition To the EMPIRE Family



Cast-Iron
Centrifugal
Trap
A-1829

This is our newly designed Empire centrifugal trap with vent at bottom and adjustable, nickel-plated sink connection.

The advantages of a trap with centrifugal action and of this special design will be readily appreciated.

It is of the usual Empire quality and finely finished.

Specify Empire products for all installation work and recommend them for replacements.

The use of our products means satisfaction to all concerned. Write us your needs.

"If it's an EMPIRE product you know it's right."

**Empire Brass Manufacturing
Company, Limited**

London and Toronto, Canada

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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TINKER TOM'S TALKS.

No. 303

Reduced Prices on



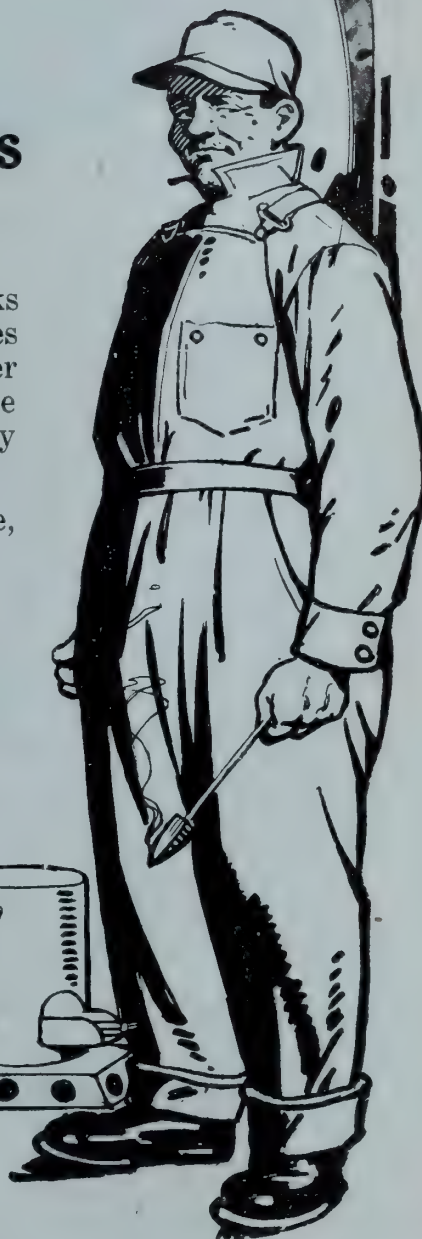
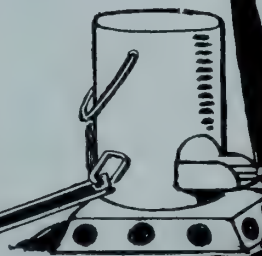
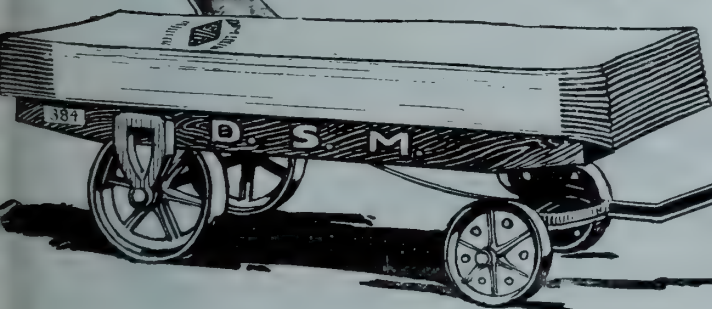
Galvanized Sheets

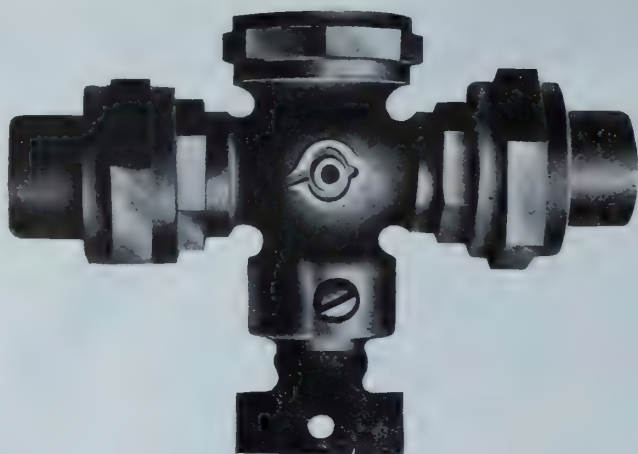
Get this point, Mr. Sheet Metal User!

Our jobbers do not have to carry big stocks of Galvanized Sheets, hence, when prices fall, they keep right in line. The jobber who loads up on "Import Sheets" is the last to meet a falling market. It's only natural, too.

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Controlling Water
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GOODS are as good as the best
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Our Ground Key products are of
the finest quality. Plugs are
"ground in" and the grease used is
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a velvet bearing at all times.

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rest of our metal products, is sub-
ject to a hydraulic test to insure
its non-leakability.

Standard threads, special pack-
ings and neat designs are all em-
bodied in our parts.

Cee Bee quality upholds the repu-
tation of the jobber and the plum-
ber as well as the maker.

CANADIAN BRASS  THE CANADIAN BRASS COMPANY LIMITED.
GALT TORONTO



A Country House —and nothing more?

HUNDREDS of people pass this country place every day. They admire it with a glance and drive on.

To you—however—with your knowledge of the plumbing and steam-fitting trade—it has more than a casual interest.

You do not look at merely the outside of a fine house—you think of its heart—its heating system, lighting facilities, drainage, sanitation, all carefully *built in* to fit a skilfully combined plan which gives comfort and service to the owner.

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If people could be made to think more of the wonderful comforts of modern workmanship like this, you would hear fewer uncomplimentary remarks about the

plumbing business. And as more workmen realize that good work comes from good tools and *knowing how to use them*, the plumbing business will earn the commendation it deserves.

Good tools—we mean the **GTD** kind—do away with the jams, botches, delays that used to kill progress. Today the clean-cut jobs, where there is profit and pride, are done with such tools as the **GTD** Receder—which will quadruple pipe-threading production—or the “*Trio*” Die Stock—which will triple the value of any man’s time. And no *good* workman would think of tackling the big job without them.

To master plumbers—send for circulars describing the **GTD** Receding Pipe Threader—“*Trio*” Die Stock—**GTD** Pipe Wrench—and information about our master tools.

Use the coupon.

GTD
Corp.
of Canada
Limited
Galt, Ontario

Send your circulars describing the **GTD** Receder and other tools. Also put our firm on your mailing list to receive information about these tools whenever issued.

Name _____

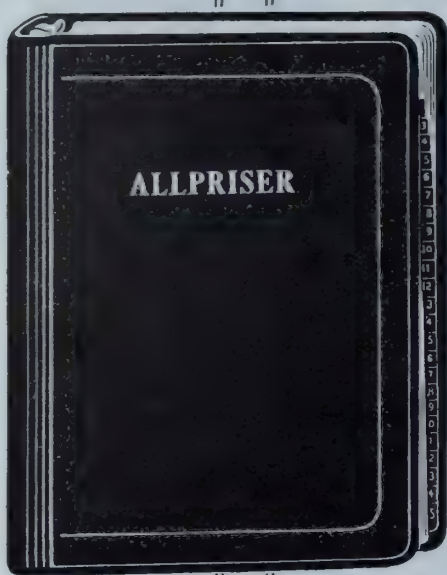
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Address _____

S.R. 408



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possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



They insure the best of service, and stamp any job on which they are used as well equipped.

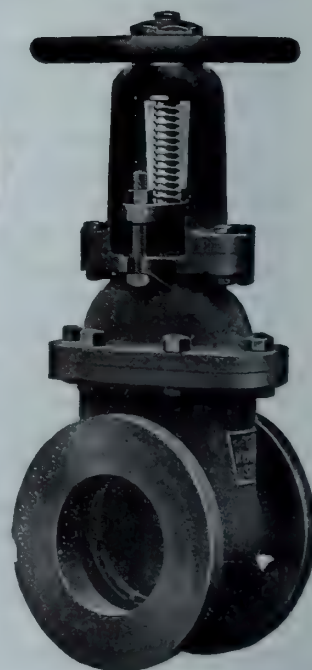
Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

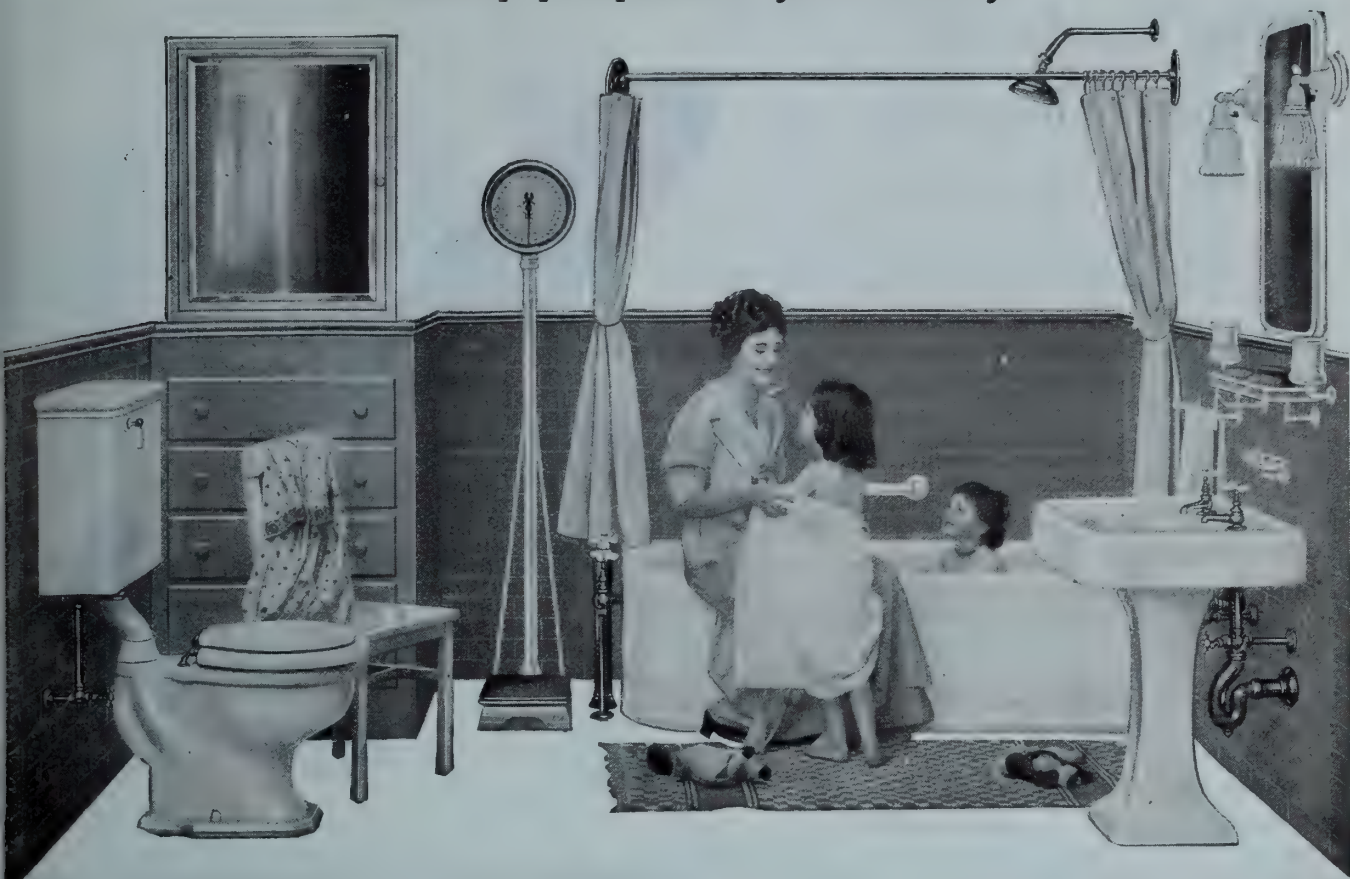
THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers

WALKERVILLE, ONTARIO



**This advertisement appears in Farmers' Magazine issue of March 10th.
Follow up prospects in your vicinity.**



The Centre of Home Health

Sanitation, health and comfort demand the bathroom as essential to the perfect home. No longer is it considered a luxury, since the science of manufacture has produced such beautiful fixtures at moderate prices.

The development of the individual water system for rural homes has placed the bathroom within the reach of all farm dwellers. The generation-old dream of comfort and convenience can now be realized—you can have a bathroom as completely equipped as in any city home.

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Consult your plumber—he can best advise you about

“Standard”

PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

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Winnipeg Showrooms:
76 Lombard Street

Calgary:
325 Eighth Avenue West

Hamilton Store:
20-28 Jackson Street West

Vancouver:
860 Cambie Street

“MADE IN CANADA”

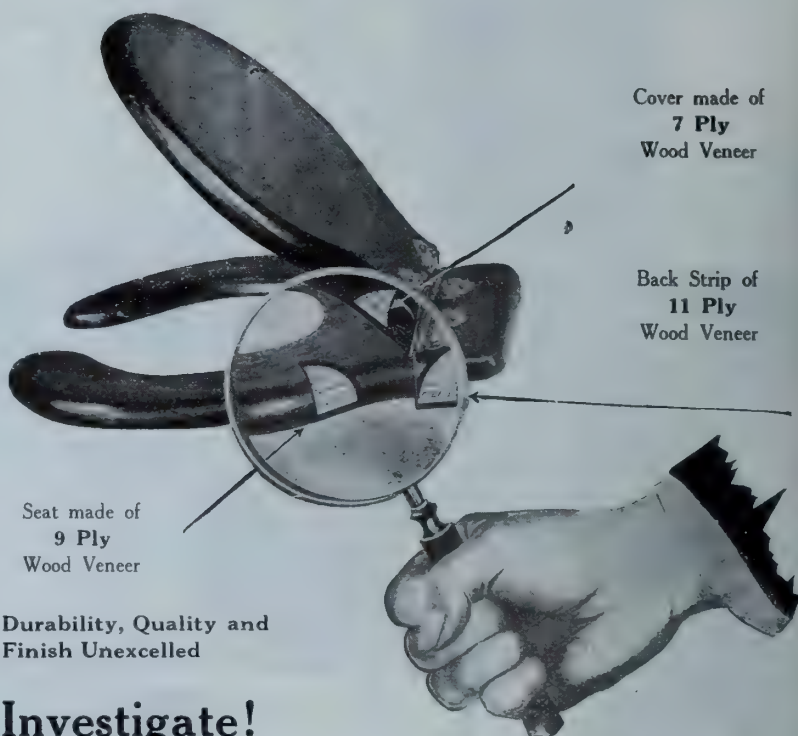
The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.

CANADIAN VENEERING CO., Inc.
ACTON VALE QUE., CANADA



Cover made of
7 Ply
Wood Veneer

Back Strip of
11 Ply
Wood Veneer

Seat made of
9 Ply
Wood Veneer

Durability, Quality and
Finish Unexcelled

Investigate!



Williams'
"Vulcan"
DROP-FORGED
Chain
Pipe Vise

Unbreakable—
Powerful Grip—
Quick Adjustment—
Attachable Anywhere—
3 Sizes— $\frac{1}{8}$ to 8 in. Pipe
Ask for Booklet.

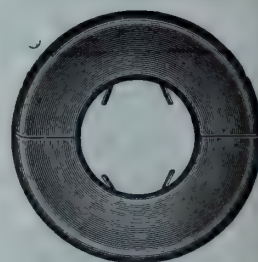
J. H. Williams & Co., Limited

Formerly Canadian Division of
The Whitman & Barnes Mfg. Co.

77 Thorold Road St. Catharines, Ontario



OPEN VIEW
NO. 10-A



TOP VIEW
NO. 10-A

The
CEILING
PLATE

that's
better

THE NO. 10-A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES $\frac{1}{2}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



Gem No. 4.



Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

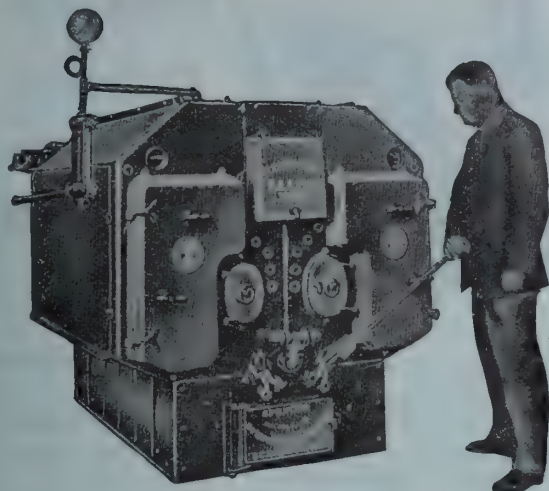
Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.

New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

"MADE IN CANADA"



The Spencer Steam—27 sizes
Capacities 375 to 10,000 square feet

"The Master Mind"

in heating boiler construction is this

S P E N C E R

Because of the water-jacketed magazine and self-feeding features of the Spencer,

Fuel Is Burned the Natural Way

thus eliminating waste, while giving a constant service to the delight of the owners.

There is inspiration in the attempt and satisfaction in the result of every Spencer sale and installation.

There is a size Spencer Steam or Water boiler for every type of building.

SPENCER HEATER COMPANY OF CANADA, LIMITED

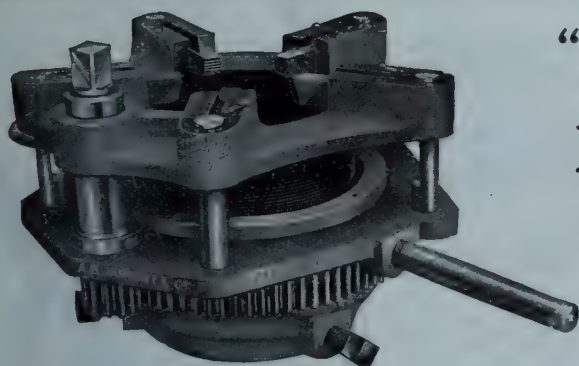
71 St. James St.
MONTREAL

68 Adelaide Street East
TORONTO

185 Portage Ave. E.
WINNIPEG

PLANT

PENETANG



"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

"Made in Canada"

Sole makers of "Jardine" Pipe-Threading Tools.
Sole Licensees to manufacture and sell Toledo
Pipe-Threading Tools in Canada.

Agents, Winnipeg and West—Stanley Brock, Ltd.,
Winnipeg, Man.

Brockville and East—J. R. Devereux, 358 Beaver
Hall Square, Montreal.

Belleville and West—W. H. Cunningham & Co.,
269 Richmond St. West, Toronto, Ont.

"JARDINE" and "TOLEDO" Pipe-Threading Tools

Interesting Features

The Jardine and Toledo have no cams or gimcracks to get out of order, and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

A. B. Jardine & Co.

Limited

Hespeler

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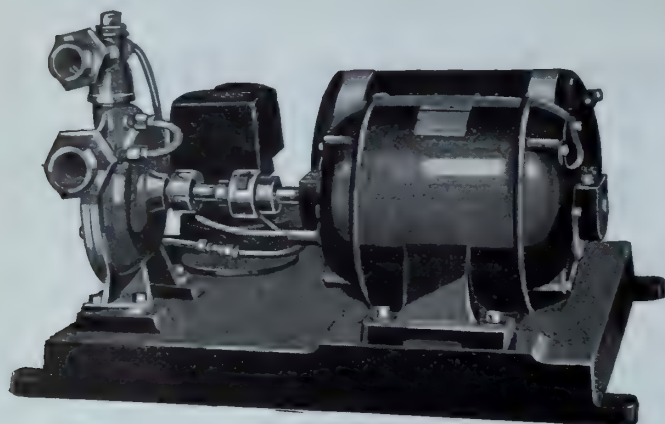
Ontario

We have the largest stock of pipe-threading tools in Canada and can make prompt deliveries. Send this coupon for catalogue and literature that will interest you. Do it now.

Name _____

Address _____

Sanitary Engineer



The New *Westco* Tankless Water System

It is very often said that nothing is so perfect but that it may be improved.

To some extent this is true—at least we think so—so much so, that we are always investigating to discover means of improving the Westco System.

The general operation of the Westco Tankless System represents absolutely the last word in water pressure systems. Therefore, it is only in the details of construction of the system that we can effect improvements.

If you already sell Westco Systems you should write us for particulars about the improved Westco System.

If you do not sell Westco Systems you should write and find out what you have been losing by not handling this line.

For your information: The Westco Tankless Water System is now fitted with an

All-Bronze Pump and New Westco Two-Pole Pressure Switch

Write us for complete information about this pump, which has only one moving part, and for our Dealer Co-operative Plan.

Westco Pumps Limited

707 Yonge Street,
Toronto, Ont.



SIMPLEX Cast Iron Adjustable Anti-Syphon Traps

Cheaper to instal and more durable than Lead Traps.

Easily taken apart for cleaning, as connections between parts and clean-out screws are heavy cast brass.

Body can be adjusted to desired position. Can be installed by using Standard Iron Pipe to wall or Street Elbow to floor.

Our full line quality Rubber Goods gives satisfaction.

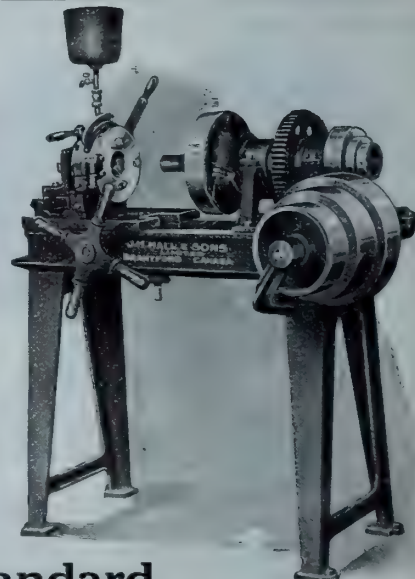
Mail orders receive prompt attention.

WOLVERINE
LIMITED

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Large Spindle and Spindle Bearings. Rack and Gear Machine Cut. Specially constructed Reservoir and Filterer. All Gears amply protected. Large Oil Trough. Compact Control. Crank furnished for Hand Power. Power Pump supplied extra. Special Overflow Valve extra.



Hall Standard Improved Pipe Machine

is of simple construction, quick and easy of operation, and has been built on the Hall standard of workmanship and service.

Let us mail you full information regarding this money-saver, together with catalog covering our complete line of Power Pipe Threading Machinery.

Delivery from stock.

**Williams Tool Corporation
of Canada, Limited**
Brantford, Canada



Victory Radiators

The water circulates through upper and lower Headers, and between two tubes—a smaller tube within a tube.

Uses 80 per cent. less water.

Saves one-third of coal. A smaller furnace keeps the water hotter.

Costs 20 per cent. less to instal a system.

Over 200 successful installations made in the Province of Quebec.

Representatives wanted — Plumbers and Steamfitters — in different provinces. Address,

MONTREAL GENERAL TOOL COMPANY, LIMITED

2419 Notre Dame St. East, Montreal

Display the **STACK HEATER** *and Make Profitable Sales*

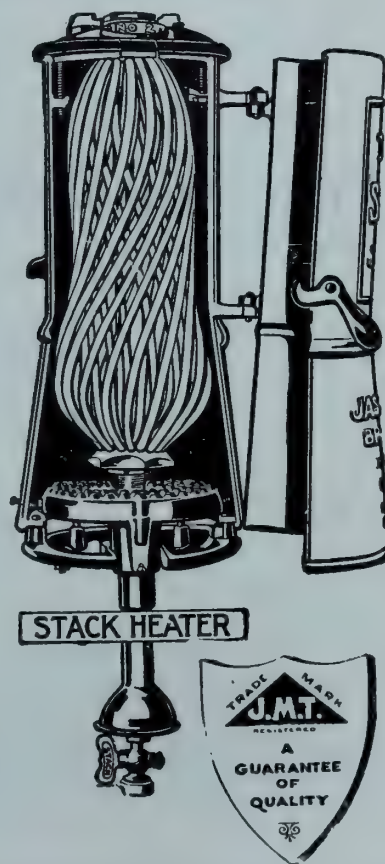
Stack Gas Water Heater has many powerful selling points. It saves gas, and gas saved is money saved.

The network of small pipes exposed to the hot gas flame will heat water quicker than one large pipe because of the greater heating surface offered. Heats water in a minute; show your prospect. No technical knowledge is necessary to see the advantage of the Stack Heater.

Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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TORONTO, MARCH 15, 1921

No 6

CONTENTS

Good Results From Plumbing Display.....	13
Saskatchewan S. and H. Engineers' Convention.....	15
Merits of Cast Iron, Wrought Iron and Steel Pipe.....	16
Sewage Disposal for Rural Homes.....	19
Practical Sheet Metal Work.....	21
Editorial Comment.....	25
News From Here and There.....	26
Waterworks—Tenders, Contracts Awarded.....	29
Current Market Quotations—Toronto, Montreal.....	30

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"PUSSYFOOT" CLOSET TANK



TWO MODELS
Square Type
D. Type

**With
New Large
Water
Chamber
Valve**



We have installed up-to-date machinery, and the most expert workmen, for the production of this up-to-the-minute Tank.

You can examine "PUSSYFOOT" Tanks in your own shop by dropping us a card, we sending you one of each model to any part of Ontario for your inspection. They can be returned without any expense to you, or purchased if you desire.

We want you to know our "PUSSYFOOT" Tank. You can then order from your REGULAR JOBBER with confidence.

MODERATE PRICES.

We give you a life guarantee.

**You will make money, save money, and better serve your trade
by using these Tanks.**

THE CANADA METAL COMPANY, Limited

Montreal

Toronto

Winnipeg

Vancouver



Jumped From The Frying Pan Into The Fire

By Booster Binx

You are right, we did have a chat together about the frying pan; and you knew exactly what I meant, but some didn't quite get me.

One went so far as to say that I said: "We jumped from the frying pan into the fire."

What I did say, was that a frying pan made us get on the jump, about our direct fire surfaces.

The fire we were talking about, happened to be in our old-style Burnham.

The pan was what the fire surface then was.

Just a flat surface like a pan.

Just naturally, it didn't pan out, economywise, to suit the Big Boss.

So, somebody—to be honest, believe it was a woman—hinted that if that surface, instead of being one big pan, was a lot of small ones stood on edge, so the fire would lick around three sides—what a wonder of a coal-saver it would be.

So that's about what we did. Only we made the pans key-hole shaped.

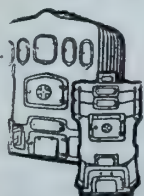
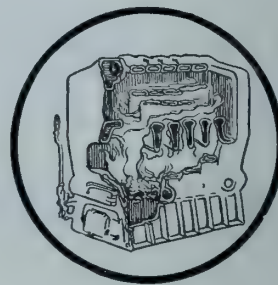
After which, each section had its own on-edge-pan, extending from side to side. The direct surface was like a flock of pans hovering over the fire.

The wise little woman who suggested it, now persists in saying: "The idea popped out of the frying pan into the fire." Being as how it is not always safe to contradict the women folks, let's let it go at that.

The main thing is, that now you surely know why the Burnham's direct fire surface is made the way it is made.

Likewise, one of the big reasons why it squeezes the very life out of every pound of coal.

So long, I'll see you again in a week or so.



Lord & Burnham Co. Limited

(Boiler Department)

ROYAL BANK BLDG.
TORONTO

Factory:
St. Catharines, Ontario



Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Volume XV.

TORONTO, MARCH 15, 1921.

No. 6

Good Results From Plumbing Display

Displaying Plumbing Goods Will be Emphasized by Canadian Trade Extension Bureau—Some Effective Displays Arranged by T. J. Minnes & Co., Brantford, Ont., as Advocated by Trade Extension Movement

PART of the service of the National Trade Extension Bureau of the United States is to provide plumbing and heating engineers with plans and dimensions for the arrangement of displays. It is felt that trade extension, as applied to the plumbing business, must start with a system of education. In this connection it is thought that one of the most important lessons to be taught is the display of plumbing goods.

Discussing the point at last year's convention of the Ontario Society of Domestic Sanitary and Heating Engineers, it was the opinion expressed by some of the leaders in the movement for the establishment of a Canadian Trade Extension Bureau, that one of the chief reasons why the plumbing trade has not been accorded its proper status in the past has been largely due to the fact that many operators have been content to work out of a dingy cellar or store located in an out-of-the-way place, and these operators have never figured the value of an up-to-date display as a help in selling fixtures.

It is realized by all that the days of

real salesmanship are here, that every possible factor to help in selling is needed today and that much attention must be given the question of displaying plumbing goods in order to increase the demand for them.

Canadian Trade Extension Movement

To this end, and in view of the steps being taken for the formation of a Canadian Trade Extension Bureau, the suggestions for plumbing window and store displays, as shown herewith, will give some idea of the benefits which may be derived from such service. These displays have been arranged by T. J. Minnes & Co., Brantford, Ont. Dealing with the subject, Mr. Minnes stated to Sanitary Engineer:

"The idea of these displays is to create a desire on the part of the public for good plumbing goods. This desire cannot be created by having plumbing fixtures sitting in a haphazard manner about the store, and in far too many instances set up half assembled minus a trap and bibbs or cocks, as the case might be, perhaps a closet outfit set up

without a seat on the bowl. It is not fair to the prospective customer, as it leaves to them the necessity of exerting their imaginative power as to what the finished work in their home would be like, and in most cases their power of imagination does not do justice to the real results the plumber is capable of achieving. Therefore, it also is not fair to the plumber to place himself in this disadvantageous position.

"The same thing is also true of window display; too often one will see a good plate glass front not working for lack of interest and appreciation as to its worth. The plumbing trade as a whole is altogether too lax in setting forth the good front that would raise themselves in the estimation of the public, and are losing a golden opportunity of suggestiveness that would bring them good returns for the time and investment in maintaining display windows and show rooms. It is with this idea in view, which has been taken from lessons in trade extension, that we here produce two photographs of plumbing goods display which



An attractive window display of plumbing goods as arranged by a feminine member of the staff of T. J. Minnes & Co., Brantford. It has just the touch which will make it appeal to women shoppers. The method of dressing this window is described in the article.



Showing how two complete bathroom sets are arranged in the T. J. Minnes & Co. store, Brantford, Ont. The rear set is that of a standard three-piece bathroom complete with shower. Partitions about four feet high help to convey a better impression of how the sets will look when actually installed. Good use is made of the exterior of the partitions for the showing of other plumbing lines.

can be accomplished with comparatively little expense in any plumbing establishment.

Young Lady Dresses Window

"Photo No. 1 is a window display, the credit of which is due to the efforts of a young lady in the office whose taste is evidence of refinement, which any office girl could acquire with a little thought. It is really a very simple thing to dress this window as you will note by the following specification: Take a number of cans and set in window in such a manner to use as supports for some pieces of rough boards built along the lines of a doorstep, face over neatly with blue crepe paper neatly crimped and pinned into position, then use common sense in placing the bathroom fittings in such a manner that it is pleasing to the eye, and do not use too many fittings in the display. Very simple, isn't it? This window has been the subject of much attention by passersby and of many compliments to the designer. Incidentally, it has also been the means of many sales and enquiries. Of course, that is the intention.

"Photo No. 2 is that of two complete bathrooms in detail; the rear one is that of a standard three-piece bathroom with fittings, the front one is also a three-piece bathroom complete with shower, the fixtures and fittings being of a more expensive design and finish. The partitions are about 4 feet high and composed of 1-inch rough pine faced with beaver board in one panel, with 6-inch base

MINIMUM TEMPERATURE IN APARTMENTS IN ONTARIO

An act to amend the Public Health Act has been introduced in the Legislature of the Province of Ontario, which amendment reads as follows:—

1. The owner of every apartment house or other building in which rooms or suites of rooms or apartments are rented who has the control of the heating of such building and rents the same or any part thereof and undertakes to keep the same heated shall keep the portions thereof so rented heated throughout to a temperature of not less than 68° Fahrenheit between the first day of October in each year and the first day of June in the following year and in default he shall be guilty of an offence and shall incur a penalty of not less than \$50 and not more than \$500.

2. The medical officer of health and any sanitary inspector acting under his instructions or those of the local board, may enter any such apartment house at any time for the purpose of seeing that the provisions of this section are complied with.

It is understood that municipalities in the province are given power to enforce this regulation and already the City of Toronto has taken steps along this line.

board and $\frac{3}{4}$ by 2½ inches trim with cap and mold, the beaverboard is finished in gray, while the inside trim is finished in white enamel, and the outside in oak stain. The arrangement of the two bathrooms really is an economy of space in store as there is more wall or partition space on which to set the plumbing fixtures. This arrangement has caused such favorable comment by people visiting the store, that the success of the efforts are already assured. A layout similar to the one herein shown will repay anyone who may venture, not to speak of the satisfaction he surely will feel in seeing the improvement made to his store. This idea of ours may be carried out upon a larger or smaller scale according to the size of the store, and may also be more or less elaborate to suit the owner's taste or amount of expenditure allotted.

"In the United States the Trade Extension Bureau will, upon request and receipt of the dimensions of a store, make a layout free of charge that will suit the requirements of the owner to the best advantage of the store and in Canada the same idea will be carried out by the Canadian Trade Extension Bureau and in fact will co-operate with any plumber who is desirous of bettering his business condition."

The photograph shown here is one-half of a combination plumbing and electrical store, but the idea may be carried out just as successfully in a straight plumbing establishment.

Saskatchewan S. & H. Engineers' Convention

Representative Gathering of Plumbing and Heating Engineers, Plumbing Inspectors and Representatives of Wholesalers and Manufacturers—Many Problems of Plumbing and Heating Engineers Were Discussed

From Special Correspondent to Sanitary Engineer

MOOSE JAW.—Every delegate to the third annual convention of the Saskatchewan Society of Sanitary and Heating Engineers was unanimous in the opinion that the open discussion of many of the problems facing the craft to-day was of great value and the hands of the society have been further strengthened by the gathering. The convention proper lasted three days, delegates coming to this city from all parts of the province. Arrangements were in charge of T. G. Bayliss, George Baird and H. E. Montgomery, and the executive committee outlined some preliminary plans before the opening of the convention, which was held in the Builders' Exchange Rooms.

The convention was given an official send-off by his worship Mayor Smith, who addressed a few words of welcome to the delegates. In his remarks his worship stated that their occupation was closely connected with his own medical profession, in that they were both engaged in protecting the public health. Therefore it was right that they should work hand in hand. He wished them success in the convention and hoped that they would pass resolutions to the best interests of the public health.

President T. J. Alexander in his address congratulated the members upon their showing and emphasized the importance of using every available minute of their time for aiding the deliberations as there was much urgent business to be taken up. A splendid report was presented by the secretary-treasurer of the society, James Adam, Regina.

Apprenticeship Problem

At the afternoon session the election

of officers was held with results as outlined elsewhere in this report, following which addresses were delivered by Scott Robertson, Regina, the newly elected vice-president, on "The Apprenticeship Question" and by President C. A. Green on "Association Work."

In his address on the apprenticeship subject Mr. Robertson pointed out a few of the main reasons why it was so difficult to secure apprentices for the plumbing trade. He was of the opinion that the work would have to be made more attractive for the young men. For this purpose technical training should, he thought, be introduced as well as practical training. Most of the young men who left school to enter a profession were not satisfied to start in the plumbing trade as an apprentice when much better pay could be obtained elsewhere. Therefore, he stated, it was up to the convention to get together on the question and make the trade more attractive and inducing to young men about to enter the business world.

Inter-provincial Associations

Mr. Green's address was of a general nature, emphasizing the importance of getting together and suggesting the formation of inter-provincial associations for the purpose of standardizing the work of the men and the materials used. At this session addresses were given by James Smith, Winnipeg inspector of plumbing, and by R. H. Murray, Regina director of sanitation, Provincial Bureau of Public Health. These addresses are given in full elsewhere in this issue.

At the conclusion of his address on the respective merits of wrought iron, steel and cast iron pipe, Mr. Smith pro-

duced pictures and examples of corrosion of pipes which he had collected during his work.

A suggestion for standardization of pipe fittings was referred to the executive committee for further discussion.

Visit Disposal Plant

At the Thursday afternoon session a trip was paid to the local sewage disposal plant by the delegates and wholesalers, followed by a session of the convention open to the wholesalers at which a number of interesting subjects were discussed. This was followed by an address by W. H. Meyhew, Moose Jaw, Government boiler inspector, on the subject, Low Pressure Boilers, and an address by Dr. Bayley, medical health officer, Moose Jaw. George Baird, of Moose Jaw, spoke on "Business Methods," after which the session adjourned for the afternoon.

The Banquet

A fitting climax to the splendid convention was the banquet tendered by the local members to the delegates at the Empress Hotel on Thursday evening. Every provision was made for the entertainment of the visitors, the entertainment committee consisting of George Baird, Tom P. Bayliss and H. E. Montgomery. Retiring President T. J. Alexander made a genial toastmaster.

His Worship Mayor Smith, Commissioner Mackie and Dr. Bayley, M.H.O., were on hand representing the city, R. Farquharson represented the Board of Trade. There were also in attendance many salesmen representing manufacturers and supply firms.

After the appetites had been fully



DELEGATES TO SASKATCHEWAN PLUMBERS' CONVENTION

A group taken in front of the premises of the Moose Jaw Heating and Plumbing Co., Moose Jaw, Sask., of the delegates to the annual convention of the Saskatchewan Association of Plumbing and Heating Engineers.

satisfied Ald. T. J. Alexander took up his duties. A toast to "The King" was proposed by his worship Mayor Smith, followed by one to the Provincial Association proposed by N. B. Roantree, the "Daddy" of the association, and responded to by C. A. Green, Saskatoon, the new president. In their remarks Mr. Roantree and Mr. Green touched upon the growth of the society since its inception in Regina three years ago.

Other toasts during the evening were "The City of Moose Jaw," proposed by Neil Beaton, Saskatoon, responded to by Commissioner Mackie. A toast to "Manufacturers and Jobbers," proposed by Vice-President Scott Robinson, Regina, and responded to by J. Stevens, of the John Stevens Company, Winnipeg. Toast, "Our Guests," proposed by H. E. Montgomery and responded to by James Smith, Winnipeg.

These toasts were interspersed with songs by G. C. Hawley, Geo. Baird, R. B. Stewart and Tom P. Baylis, a monologue by James Drynan and a reading by A.

Frost. Lively sing-songs by the whole gathering were conducted by Geo. Baird.

Those in Attendance

Among the members present were the following:

Regina Plumbing & Heating Co., Regina; Vagg, Wilson Co., Regina; Franz Franks, Regina; Potts & Smith, Regina; Whitford Bros., Regina; Frost Bros., Regina; Roantree & Co., Regina; Jas. Adam, Regina; Empire Plumbing Co., Regina; Pitts Bros., Regina; Frost Bros., Moose Jaw; H. E. Montgomery, Moose Jaw; Moose Jaw Heating & Plumbing Co., Moose Jaw; Alexander & Baird, Moose Jaw; T. P. Baylis, Moose Jaw; Northern Plumbing Co., Saskatoon; Beaton & Brady, Saskatoon; H. D. Wheeler, Saskatoon; Cornish & Co., Saskatoon; Chas. D. Kirk Co., Saskatoon; P. J. O'Neil & Co., Swift Current; Geo. Walker, Weyburn; J. C. Stewart, Weyburn; A. I. Kracenski, Melfort; W. L. Powers, Rosetown; J. E. Yates & Co., Brandon, Man.; Cooper & Scarrow, Yellow Grass; Alex. Rankin, Keppel; A. L.

McKay, Semans; Sanitary Plumbing & Heating Co., Yorkton.

Visitors

Among the visitors were the following:

Jas. Smith, chief plumbing inspector, Winnipeg; J. A. Bertwhistle, chief plumbing inspector, Regina; H. D. Mathias, plumbing inspector, Regina; G. G. Taylor, chief plumbing inspector, Saskatoon; C. Jones, chief plumbing inspector, Moose Jaw; R. H. Murray, director of sanitation, Provincial Bureau of Health; Thos. Watson, chief inspector, Provincial Bureau of Health; Thos. A. Reid, inspector, Provincial Bureau of Health.

Wholesale firms and manufacturers represented were:

Toronto Hardware Co., Anthes Foundry Co., Dominion Radiator Co., John Stevens Co., J. Robertson Co., Wolverine Co., Ltd., J. H. Ashdown Co., Pease Western Foundry, Engineers & Plumbers' Supply Co., Canada Metal Co., Gurney Foundry Co., Cronkhite Co., Ltd., Wood, Vallance Co.

Merits of Cast, Wrought Iron and Steel Pipe

Details of How These Three Kinds of Pipe Stand Up Under Use For Drainage Purposes—Theories of Corrosion—Advantages and Disadvantages of Screwed Pipe

Address by James Smith, Chief of Plumbing Inspectors, Winnipeg, before Convention of Saskatchewan Sanitary and Heating Engineers

IN introducing this subject it is well perhaps to state that the base metal of cast iron, wrought iron and steel is pig iron, the different names being applied to these metals as a result of the particular processes through which they pass in their manufacture.

Cast iron is the only one of the three metals which does not undergo any change in its characteristics in the process of manufacture, but is merely converted into a molten state to permit of its being moulded into the different shapes required for the many purposes in which cast iron is used.

Wrought iron has, however, to undergo a refining process called "puddling" to render it comparatively free from carbon, silicon, sulphur, phosphorus and manganese, before it can be manipulated into thinly rolled sheets for the purpose of making wrought iron pipe, etc.

Steel—The difference between wrought iron and steel is that in the manufacture of steel pipe a certain amount of ferromanganese is added to the molten metal in the Bessemer converter to make it possible to roll and weld the over-oxidized metal.

The merits of these three metals for drainage purposes rest primarily on their ability to resist corrosion.

Theories of Corrosion

It is not my intention to weary you with a description of the different theories of corrosion, suffice it to say

that there are at least three well defined theories, viz., hydrogen peroxide, carbonic acid, and electrolytic. But we can leave this side of the question to the chemist and analyst. On one common point they are mutually agreed, and that is that the iron particles must be in direct contact with oxygen and moisture before rusting can take place.

My intention is rather to treat the subject from a practical point of view, giving you a résumé of the investigations made in recent years, as well as my personal experience, and the deductions I have arrived at in a study of the question during the last five or six years.

Dr. Gerhard's Investigation

In 1918 Dr. William Paul Gerhard, C.E., made an investigation of the condition of the piping in 78 buildings in a prescribed area in New York, and while he proved conclusively that steel pipe was unsuitable for drainage purposes, due to it being subject to corrosion much more readily than wrought or cast iron pipe, he says: "Extra heavy cast iron pipe, on the other hand, was found in a number of buildings, and in nearly all cases the cast iron vents were found to be evenly pitted on the inside, similar to wrought iron vents, and still good for many years' service," and further on he states: "In one or two instances cast iron vent pipes were found to be as good as new, though they were the original pipes put in when the building was erected, in

one case 36 years ago; in another case, 35 years ago; in another, 29 years ago."

Truly, an excellent testimonial for cast iron pipe.

Dr. Gerhard also found several systems of plumbing in which both wrought iron pipe and steel pipe had been used, and discussing the indiscriminate use of wrought iron and steel pipe, he says: "The mixed steel and wrought iron installations not only afforded an excellent comparison of the life of wrought iron and steel pipe under equal conditions of service, but also emphasized the widespread substitution of the cheaper steel pipe where wrought iron pipe is specified. The presence of steel pipe in buildings supposed to be piped with wrought iron may possibly account for the erroneous belief on the part of some engineers and architects that there is practically very little, if any, difference in the corrosion of iron and steel pipe and hence in their respective duration of life."

"The fact should also be mentioned that many architects' and engineers' specifications do not attempt to make a distinction between genuine wrought iron and steel pipe."

Kindly note these facts, that wrought iron and steel pipe are used in the same installation, apparently because the average man, be he a plumber or an architect, is unable to distinguish the difference, also that architects' specifications do not make any distinction between



NEWLY-ELECTED OFFICERS AND EXECUTIVE OF SASKATCHEWAN SANITARY AND HEATING ENGINEERS' ASSOCIATION

Back row, from left to right (members of executive committee)—G. E. Yates, Brandon, Man.; A. L. McKay, Semans, Sask.; N. B. Roantree, Regina, Sask.; N. Beaton, Saskatoon, Sask.; T. G. Alexander, Moose Jaw, Sask. Front row, left to right, are Vice-president J. Scott Robertson, Regina; President C. A. Green, Saskatoon; Secretary-treasurer J. Adam, Regina.

wrought iron and steel pipe, as I shall refer to those matters later.

Summary and Recommendations

We will now deal with Dr. Gerhard's summary and recommendations, and in order to be quite fair I will quote the full text of his summary.

"(a) Cast iron extra heavy soil pipe, while satisfactory as a material from the corrosion point of view, is objectionable because of the caulked joints, which cannot be depended upon to remain tight under all conditions of use."

The only objection apparently that can be taken to cast iron pipe installations is on account of the caulked joints not remaining tight under all conditions. It is worth noting that of the 78 buildings examined by Dr. Gerhard 24 of them or 30 per cent. of the whole were piped with cast iron stacks, and I cannot see an instance where he found a defective or leaking joint on any of these stacks. The only defective caulked joints found were on drains, and to quote his own words, was "particularly noticeable whenever large quantities of hot waste water, as from dish washing in restaurants, pass through the pipes, and also where steam exhaust or drip pipes, or boiler blow-offs are tapped into the house sewer."

My contention is that these pipes were installed as drains, not as steam exhausts or blow-offs, and there is ample provision in all by-laws to prevent such an occurrence.

"(b) The screw joint is far superior to the caulked joint. Care should be taken to cut the threads, and to have drainage fittings so tapped that the pipe can be screwed well into the shoulders of the

fitting. Any portion of the thread remaining exposed can readily be protected against external corrosion by careful painting. Any fears that may have been felt as to the strength of the weld and the rust resistance of the pipe thread have not been confirmed, for such failures as were observed were due in general to extensive corrosion rather than to weld failure or localized corrosion at threads."

I cannot agree with any of the statements made in the above paragraph. It may be that when new a screw joint will resist a greater tensile strain than a caulked joint, but my own experience is that a screw jointed pipe gives way first at the joint and this is only to be expected, as 50 per cent. approximately of the body of the metal is destroyed when

threading the pipe, and I will demonstrate by photographs that the rust resistance of the pipe thread is no myth and is an important factor in the life of a screwed pipe. (See photo No. 1.)

"(c) It must be conceded, after the evidence furnished by this investigation that genuine wrought iron pipe is a far more durable material for house drainage purpose than steel pipe."

We all, I think, agree on this point.

T. J. Claffy's Investigation

Let us turn now to the investigation made along similar lines by T. J. Claffy, Asst. Chief Sanitary Inspector of Chicago, in the same year (1918).

There were 63 buildings examined in a particular section of Chicago and in 25 of them or practically 40 per cent., the plumbing systems were constructed of cast iron piping either in whole or in part.

In the installation from 10 to 19 years old Mr. Claffy estimates the depreciation of steel pipe at 75 per cent.; wrought iron and cast iron, 10 per cent.; in the installations over 20 years old he estimates that steel pipe depreciated 90 per cent.; wrought iron 20 per cent., and cast iron 25 per cent. There are several factors to be taken into consideration in viewing these estimated figures, particularly as he places cast iron on a lower grade than wrought iron in buildings over 20 years old. Mr. Claffy himself states that "the poor rating for cast iron in comparison with wrought iron as shown in this table is to some extent due to probable higher average age of cast iron installations," and again we must remember that in a number of the illus-

OFFICERS FOR ENSUING YEAR

The following officers were elected for 1921 by the Saskatchewan Society of Sanitary and Heating Engineers:—

President: C. A. Green, Saskatoon, Sask.

Vice-President: Scott Robertson, Regina, Sask.

Secretary - Treasurer: James Adam, Regina.

Executive Committee: N. B. Roantree, Regina; Neil Beaton, Saskatoon; T. J. Alexander, Moose Jaw; J. E. Yates, Brandon, Man.; A. L. McKay, Semans, Sask.

trations showing defective cast iron pipes these pipes are of standard weight (a light class of pipe which has never been used in this country), whereas he shows illustrations of some extra heavy cast iron pipe "installed 30 years ago and still practically as good as new."

The reports of Dr. Gerhard and Mr. Claffy are probably the most valuable practical contributions made on this subject in recent years, and viewed from all angles bear high testimony to the desirability of using cast iron piping of good quality and weight in drainage systems. Both investigators have rendered a valuable service to the plumbing trade in bringing to our attention in a practical manner the very short life of steel pipe and therefore the necessity for eliminating it from this class of work. No pipe with a life of usefulness of from 10 to 15 years should be permitted to be used in a plumbing system.

My own opportunities for research along this line have been more limited in scope due to the relatively youthful age of the city I represent (Winnipeg), but we have some striking illustrations of the undesirability of using what is commercially known as "wrought" pipe. I submit herewith samples of both black and galvanized pipe, the former taken from the Royal Alexandra Hotel during the reconstruction of the piping system. There were 68 stacks in the building, including soil, waste, vent and rain water stacks, and all of them had to be removed, as they were found to be extensively corroded. The cost of reconstruction was \$65,000. It is only just to state that this was a steel pipe system, installed in 1904 and reconstructed in 1918, so that the age of the system was fourteen years. The underground drains in this building were constructed of cast iron piping and we had ample opportunity of examining them during the course of alterations, but could find no evidence of corrosion such as existed in the stacks. They were as good as the day they were put in.

The galvanized pipe was taken from the Paulin Chambers' factory and discovered when making alterations in 1920, the date of installation being 1911. This also is, I believe, a steel pipe, although I have not had it tested.

Having gone over the ground investigated, as thoroughly as time will permit on this occasion, let us analyze briefly the advantages and disadvantages of the screwed pipe system eliminating consideration of the steel pipe altogether, as there is no doubt in my mind that it is highly undesirable to use steel pipe in drainage work.

Advantages of Screwed Pipe

The only claim made so far in favor of the screwed pipe by its adherents is that it is stronger and more rigid. Even granting that the screwed pipe system is stronger and more rigid when new,

there are many disadvantages which far outweigh the advantages.

Disadvantages of Screwed Pipe

The threaded portion of the pipe reduces the thickness and strength by 50 per cent., and if the pipe is galvanized the exposed threads are more readily subject to corrosion.

The greatest disadvantage in using the screwed pipe is that pipe commercially known as "wrought" pipe includes steel pipe and it is only with great difficulty that genuine wrought iron can be distinguished from steel pipe. I don't believe that the ordinary mechanic or inspector has enough metallurgical experience or training to determine whether or not screw pipe after it is erected is steel or genuine wrought iron.

F. N. Speller, metallurgical engineer of the National Tube Co., Pittsburg,



N. B. ROANTREE

Regina, former president of the Saskatchewan Society of Sanitary and Heating Engineers, who was elected a member of the executive committee for 1921.

states: "Up to 27 years ago hand puddled iron was used exclusively. But since the introduction of steel as the basic material for pipe there are almost as many grades as there are manufacturers, and there is more difference between the various grades of wrought iron and the different makes of steel than there is between iron and steel as a class. The man who is most ready with his opinion of the life of iron and steel cannot distinguish wrought iron from steel."

The A. M. Byers Co., of Pittsburg, prescribe certain tests for differentiating between genuine wrought iron and steel pipe, but they admit that "an uncertainty might arise when applied to a mongrel material," and when they speak of a mongrel material they refer to a "material usually sold as wrought iron, but made largely by busheling steel scrap

and with wrought iron usually forming the minor portion."

After opinions from such authorities as I have quoted showing the extreme difficulty in distinguishing between genuine wrought iron pipe, steel pipe, and this mongrel pipe, I ask you in all sincerity what chance has a mechanic or an inspector to fix their identity?

Even the relative rate of corrosion of wrought iron and steel pipe is assailed by eminent authorities.

Prof. Ira H. Woolson, formerly of Columbia University, arrived at the following conclusion after an investigation: "In my judgment, from the evidence collected there was absolutely no difference in the corrosion of the two classes of pipe, that is, iron and steel."

In a paper by Wm. H. Walker, Ph.D., in 1911, before the New England Waterworks Association, he says that "taken on the average there is no difference in the corrosion of wrought iron and steel."

Advantages of Cast Iron Pipe

The advantages of cast iron pipe on the other hand are overwhelming.

1. Withstands corrosion better than any other pipe.
2. Easy to handle.
3. Requires no special tools or equipment to handle.
4. Mistakes in measurements are not so costly.
5. More convenient to make replacements, alterations or repairs.
6. It costs less to install.
7. You know definitely what you are installing, whereas with screw pipe there is considerable doubt.

In a report of a sub-committee to a convention of the American Society of Sanitary Engineering in 1916 we find it stated: "While the service of wrought iron and steel pipe for drainage is counted in months, the service of cast iron is counted in years." The oldest installation of cast iron house drainage work that I can find any record of in this country was installed in New York in 1833 and is still in operation, while in Europe there are many cases dating back as far as 1685. It has been estimated that under normal conditions cast iron pipe will lose by corrosion one per cent. in ten years, which would make its useful life 1,000 years. In concluding their report they say: "The problem of corroded house drainage is a most serious one, as it entails danger and enormous expense, trouble and nuisance. The life of drainage pipe should in all cases be longer than the expected life of modern buildings, which as an average for all types of buildings ranges between 100 and 200 years."

"Our experience with cast iron pipe has not been sufficiently long to establish just what its life is when used for vents and sewage lines, but it would appear from the evidence presented in this report that the life of well-made cast iron soil pipe and fittings is longer than

Continued on page 36

Sewage Disposal for Rural Homes

As Specially Applicable to Western Conditions—Investigation of Sewage Disposal on Seventy-Two Farms—Function of the Septic Tank

Address by R. H. Murray, C.E., Engineer and Director Division of Sanitation of Province of Saskatchewan before Saskatchewan S. & H. E. Convention

A FEATURE in the development of rural Saskatchewan during recent years has been the construction throughout the province of modern farm homes.

These residences are in almost every case equipped with electric light and power and all the labor saving devices and conveniences which were at one time thought to be available only for the urban population. There has, however, been a tendency to postpone the installation of modern plumbing fixtures pending more definite and reliable information on the type of sewage disposal system best suited to the local conditions.

Experience has shown that a system of sewage disposal which could be left to run itself on a farm in the Eastern provinces will not prove so accommodating if installed in Saskatchewan where the subsoil is for the greater part a stiff non-absorbent clay, where creeks and watercourses are almost unknown and where the frost can be relied upon to penetrate six feet into the ground each winter.

In the "Plumbing Regulations" issued under the Public Health Act reference is made to the construction of sewage disposal systems for isolated buildings.

It is with a view to supplementing these regulations and to meeting the repeated requests for information concerning the principles, construction and operation of a sewage disposal plant for a rural home on the prairie that this report has been prepared.

In order that the information which follows may be a true statement of experience in constructing and operating sewage disposal plants in Saskatchewan, an investigation has been made by officials of the Bureau of Public Health during the past year of the systems of sewage disposal in actual use at 72 farms in different parts of the province.

The conclusions arrived at as a result of this investigation are embodied in the following pages and in the revised plumbing regulations. Such provisions of the latter as concern the disposal of sewage are appended to this report.

Methods of Disposal

Sewage from a farm house, that is the waste water from water closets, baths, sinks and wash tubs, may be disposed of in one of three ways:

1. By discharge into a watercourse.
2. By discharge into the subsoil.
3. By discharge on the ground surface.

Each of these methods of disposal requires some form of preliminary treatment to remove a proportion of the solids, otherwise a serious nuisance will be created.

Cesspools

The cesspool is an attempt to combine treatment and disposal of the sewage and it accomplishes neither. A cesspool, as one usually finds it, consists of a covered hole in the ground, the sides being cribbed with wood or lined with concrete or brick but with nothing but earth for a



T. J. ALEXANDER

Moose Jaw, retiring president of the Saskatchewan Society of Sanitary and Heating Engineers, who was elected a member of the executive committee for 1921.

bottom, the purpose being to allow the liquids to soak away into the ground.

The solids in the sewage settle to the bottom of the cesspool and choke any porous soil that may be available for absorption and the cesspool quickly becomes stagnant and offensive. The construction of cesspools as above described is no longer authorized by the regulations issued under the Public Health Act.

Septic Tanks

The septic tank is the simplest and the most practical form of treatment to reduce the suspended matter and to render the sewage capable of final disposal with the minimum of nuisance.

What the Septic Tank Does

The function of the septic tank is to assist and to expedite the natural processes of decomposition and putrefaction.

Two simple changes take place in such a tank.

The first is the settlement of the solids to the bottom, the grease and lighter particles floating to the top.

The second is the rotting of the settled solids.

This is brought about by the action of a certain type of bacteria which multiply in the solids and in the scum which forms on the surface of the tank.

These bacteria thrive without oxygen and break up the solids into liquids and gases. The above is all the septic tank does or claims to do.

The statement has often been made that sewage after passing through a septic tank has undergone "a ninety per cent. purification" and responsible citizens have averred that the effluent from a septic tank should be fit to drink.

Let these illusions be once and for all dispelled.

The effluent from a septic tank is just as dangerous to health as the raw sewage which is discharged from the house.

A septic tank removes the greater part of the solids from the sewage but it does not necessarily remove or destroy any disease organisms which may be present in the sewage as it enters the tank.

Nor is the effluent free from offence. If allowed to pond on the surface of the ground it will create a nuisance.

A septic tank will not continue to operate indefinitely without attention.

Although the purpose of the tank is to liquefy the solids, a certain amount of solid matter and residue will accumulate in the tank and will require removal once or twice yearly.

The excavation necessary for the tank may be greatly reduced if advantage is taken of any fall which there may be in the ground surface.

The soil pipe should be led from the house at the point nearest to the site of the tank.

Too frequently the plumbing is completed without any consideration being given to the location of the tank and disposal area, resulting in the latter being sited to suit the soil pipe.

In view of the low temperatures of our winter it is necessary to consider every means by which the contents of the tank may be protected against frost, and for this reason it is best to construct the septic tank as close to the house as possible.

(This does not apply to sewage pump wells which are emptied at regular intervals. The location of these will be discussed later.)

The basement or foundation wall of the house must under no circumstances be used as a wall of the tank, but the tank wall, if it has a minimum thickness of 9 inches of concrete may be built against the basement wall.

In such cases every precaution must be

taken to make the tank absolutely watertight.

The inside of the tank should be finished with a coating of cement mortar in the proportion of 1 of cement to 1 of sand.

The tank should not be situated under a window or near to a door.

Construction of Septic Tank

The dimensions of the septic tank should be 4 feet 6 inches in length by 3 feet in breadth by 4 feet in depth.

This size of tank should be used in all installations for 12 persons or under.

For larger installations the capacity of the tank should be equal to 24 hours flow of sewage estimating the latter at 30 gallons per head per day.

The depth of the tank below water level should never be less than 4 feet.

The length of the tank should be in the direction of flow and should be about one and one-half times the width to give uniform flow through the tank and to ensure that the outlet is reasonably distant from the agitation caused at the inlet.

The inlet to the tank should be baffled by discharging the sewage through a T pipe which should extend 15 inches below the water line.

The effluent from the tank should be drawn off at a similar depth below the surface, through a T pipe to prevent the discharge of any scum.

The gases which are formed by the bacterial action in the tank escape through the inlet T piece along the inlet pipe and through the soil pipe to the roof of the house.

An airtight cover must be provided for the tank. This should be a concrete slab with cast iron manhole cover and frame of sufficient size to permit of the tank being inspected and cleaned out.

Wrought iron steps let into the walls of the tank should be placed immediately below the manhole.

Final Disposal of the Effluent

Three methods of disposal have been referred to and these will be discussed separately.

Discharge of the Effluent into a Water-course

The surface water supplies of Saskatchewan are very limited and they are all liable to be used as sources of domestic water supply.

It is contrary to the provisions of the Public Health Act to discharge any liquid wastes, including the effluent from a septic tank, into a stream, river or lake unless a certificate has been issued by the Commissioner of Public Health stating that the effluent in question may be discharged without injury or danger to the public health.

Such a certificate would, generally speaking, be granted subject to the construction of filter beds or some form of secondary treatment which would render the effluent free from offence.

Any person contemplating sewage disposal by this method should communicate with the Bureau of Public Health, when

a special investigation will be made of the circumstances.

Discharge of Effluent into the Subsoil

This method is the most common form of disposal of a septic tank effluent. It is applicable only to a limited quantity of liquid, such as that represented by the flow from a residence of average size.

Its success depends almost entirely on the porosity of the ground.

The subsoil throughout the greater part of this province is a non-absorbent clay, and the general adoption of this method of disposal in Saskatchewan must therefore be attended by difficulties.

The discharge of sewage or of a septic tank effluent into the subsoil within the limits of any city, town or village in Saskatchewan is contrary to the provisions of regulations issued under the Public Health Act.

The effluent from the septic tank overflows into a "dosing" or syphon chamber which gradually fills to a certain level and discharges its contents at intervals by means of an automatic syphon into a series of open-jointed field tiles laid under the surface of the ground.

The liquid is thus gradually absorbed by the subsoil or soaks through to the underlying strata.

It must be obvious that if the ground is not porous, that is, if there are no indications of sand or gravel, or if it is already waterlogged, this means of disposal cannot be adopted with success.

It has frequently been asserted that a clay subsoil may be made to absorb a septic tank effluent by placing the tile pipes in a bed of broken stone or other coarse material.

Statements like this are entirely misleading.

If the ground is sandy and will absorb a certain amount of liquid, its ability to absorb the effluent may certainly be increased by surrounding the tile pipes with broken stone or gravel. But if a 6 inches diameter hole drilled in a bed of clay were filled with water and it was found that the water did not soak away it would be futile to enlarge the hole to 18 inches diameter and to line it with stones as a means of making the water soak into the ground. The effect would simply be to increase the capacity of the hole for holding water.

Similarly the construction of an artificial absorption bed in a clay subsoil is equivalent to providing a reservoir to hold the sewage and it will only be a matter of time until the trenches become waterlogged and the sewage backs up into the septic tank.

In other parts of the Dominion where nature has been more generous with her watersheds, the system of sub-surface distribution is used extensively in conjunction with a surface outlet for the effluent.

In such cases the field tiles are underdrained and the subsoil is used as a filter instead of as an absorption bed. The septic tank effluent after filtering through a few feet of sand or gravel is collected by under drains, the action of the bacteria which are present in the

sub-surface layers of soil oxidizes the sewage before discharge and an inoffensive effluent is discharged into a water-course or on the ground surface.

Unfortunately, this method is applicable only in a few exceptional cases in this province.

The treatment and the disposal of a septic tank effluent are two distinct and separate problems which must not be confused.

The treatment effected by the action of the nitrifying bacteria in the soil does not solve the problem of disposing of several hundred gallons of liquid daily.

This is the real difficulty which presents itself on the prairies—the disposal of the treated effluent—and in the absence of a porous subsoil it is only throwing away time and money to construct an absorption field.

Design of Dosing Chamber

If the ground is suitable for an absorption field a dosing of syphon chamber should be built to discharge the effluent on the bed intermittently.

The dosing chamber should be constructed along with and should form a second chamber to the septic tank.

The capacity of the dosing chamber should be such as to cause the field to be flushed about three times in the twenty-four hours.

Taking the daily flow at 180 gallons this would mean a flushing capacity in the dosing chamber of 60 gallons or 10 cubic feet or a chamber 3 feet by 3 feet by 17 inches deep.

A dosing chamber of these dimensions will be suitable for systems constructed for 122 persons or under.

The action of the automatic syphon which doses the sewage on to the field is as follows:

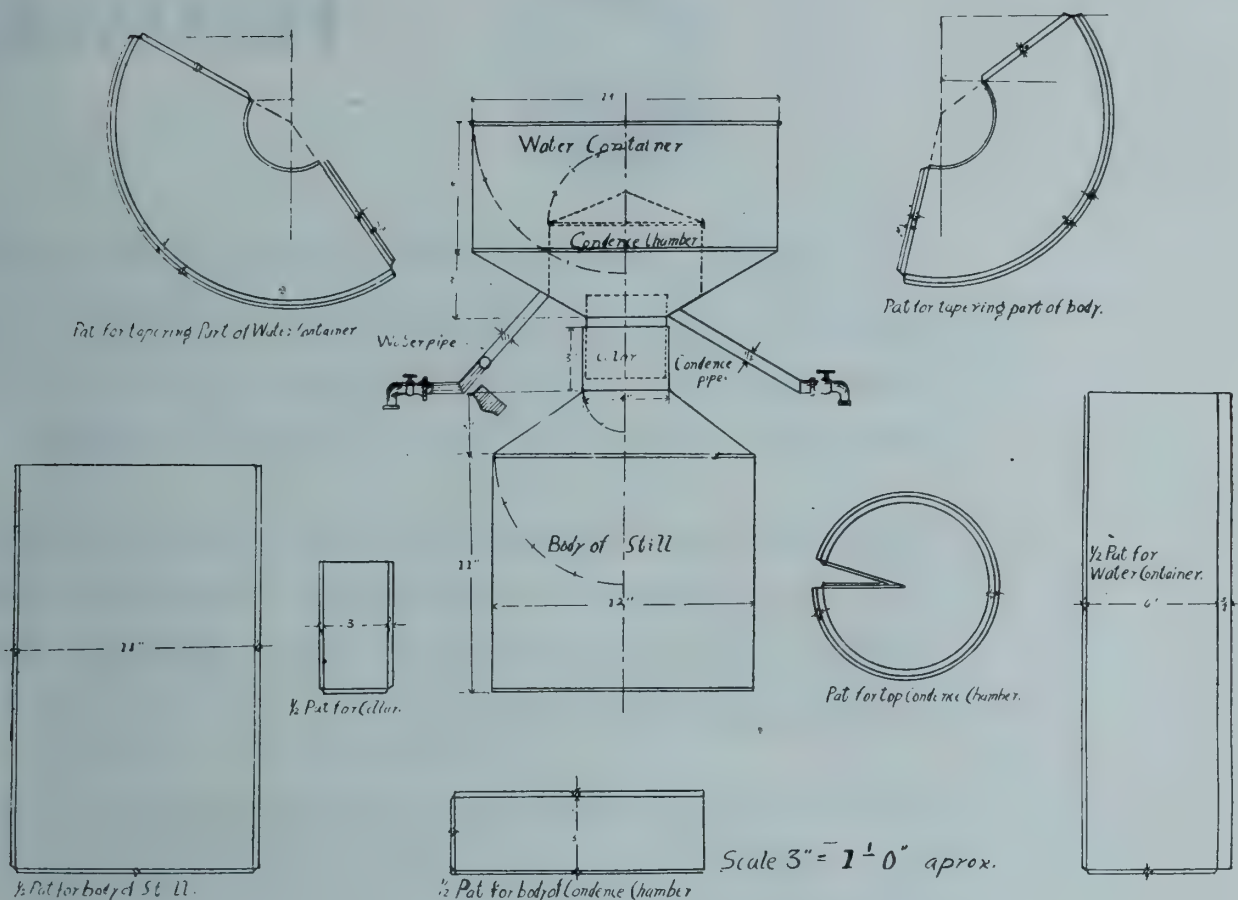
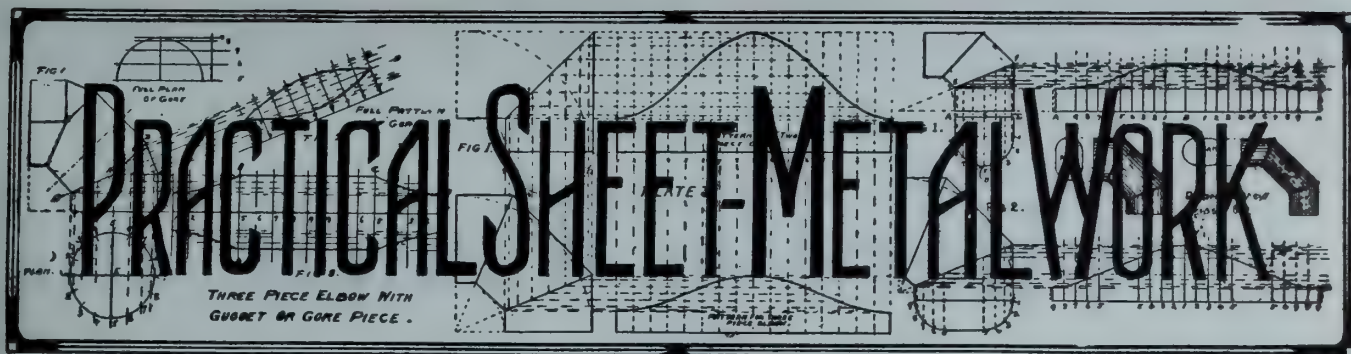
The U trap is filled with water and as the sewage flows into the dosing chamber air is entrapped in the bell which covers the long leg of the U.

The sewage is prevented from discharging by the weight of the liquid in the short leg of the syphon. When the surface of the sewage has risen high enough in the dosing chamber the resulting head on the bell end of the syphon overcomes the pressure of the column in the short leg and part of the sewage in the latter is forced out.

This starts the full flow through the syphon which continues until the sewage in the dosing chamber falls to the under side of the bell when air is again admitted, the pressures are equalized and the flow ceases.

An overflow pipe from the dosing chamber is necessary in case the syphon should fail at any time. This overflow also acts as a vent pipe to provide air for the syphon. Vent pipes should also be left in the wall which divides the septic tank from the dosing chamber, if this wall is carried up to the roof of the tank. A manhole similar to that specified for the septic tank is required in the cover of the dosing chamber and wrought iron steps are provided to facilitate inspection.

(Continued on page 24)



PATTERNS FOR STILL

By O. W. Kothe, Principal St. Louis Technical Institute an Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.

NOW and then sheet metal men are required to make a still for one purpose or another. These stills can be made in numerous designs, one of which is shown in the drawing herewith. Observe the body of still is merely a cylinder with a flaring top. This has a collar attached to it.

Now the water chamber and condensing chamber form one body, only the condensing chamber is an inbuilt compartment.

The neck stands up a bit as a shoulder to retain the condensed water.

The water container helps chill the vapor and cools on the walls of the condensing chamber.

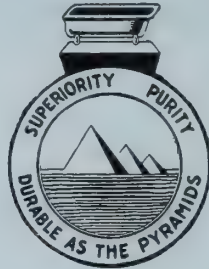
Vapor that condenses passes off in the half-inch pipe.

Observe the collar of body and stem and neck of water container must fit snug.

Stills are generally made of very heavy charcoal plated tin or copper as the condensed water seems to rust the light tin very quickly.

Patterns as required are very simple and really need no comment, in view of the multitude of similar fittings we have taken up from time to time.

There's Truth in t Reward



This slogan, adopted and spread by a great newspaper that sets an example by practising what it preaches, is full of truth, because it is based on a true estimate of present conditions.

1921 will reward the man who puts earnest effort into his pursuit of business. Someone has written, "There's no hard times coming—it's just the soft times going."

All these comments are merely ways of saying that 1921 business will fall to the men who go after it the hardest. The period has passed when business will seek the man.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Slogan—"1921 Will Fighters"



We think that 1921 will generously reward the man who makes his show rooms extra attractive, who puts his plumbing enamelware on display in ways that attract favorable attention from possible prospects. The man with the merchandising ability to do this will know how to arouse interest and the desire of possession in the prospect. Such men will correctly advise the customer and efficiently serve him, so that he will be pleased with his installation and eager to recommend it to others.

Such men, we believe, will be rewarded in 1921 with many satisfactory and profitable sales and installations of plumbing enamelware. We wish them every success—they deserve it.

g. Company, Limited

Halifax Office:
BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

RURAL SEWAGE DISPOSAL

Continued from page 20

Construction of Absorption Field

If the effluent were to be discharged into the subsoil directly it left the tank, the ground surrounding the house would be fouled.

A fire-clay pipe with tight joints should therefore be laid with a fall of 1 in 100 from the dosing chamber to a point at least 50 feet from the house where a distribution chamber or manhole should be constructed.

From this manhole the effluent is run through open-jointed tiles and absorbed by the ground.

As a general rule 50 feet of field tile should be provided for each person in the house or 300 feet for a household of six.

In subsoils of sand or gravel the amount of tile per person may be reduced to 40 or even 30 lineal feet.

The lines of tile should be laid 4 feet apart with a fall of about 3 inches in 100 feet.

The field may be conveniently excavated by means of a team and scraper.

Open tile drains should be laid on and surrounded by a 9 in. bed of broken stone, brick bats, gravel or other coarse material to facilitate the absorption process and to prevent the entrance of sand or earth at the open joints of the pipes. If gravel is available locally the whole excavation may be covered to advantage with a nine-inch layer before the field tiles are placed in position.

Care must be taken in backfilling the excavation, in order that the pipes and their surrounding bed be not disturbed.

Trees or bushes should not be grown over the absorption beds as the roots may penetrate the openings between the tiles and obstruct the flow of sewage.

Depth of Tank and Absorption Field Below Ground

The clause in the provincial plumbing regulations which has hitherto required all basements to be drained will be amended immediately following the issue of this report, and drainage of basements will in future be optional.

Any additional expense incurred by draining the basement is justified, however, by the sanitary advantages obtained and it is recommended that basement drainage be provided in all cases.

Where there is a good surface fall available the field tiles may, subject to the conditions noted below, be laid at the depth at which full advantage may be taken of the action of the soil bacteria, namely 18 to 20 inches below the surface.

Rolling ground is, however, the exception rather than the rule in this province and in the average installation it will be found that the field tiles must of necessity be laid at least three or four feet below ground level.

The regulations which have hitherto governed the installation of septic tanks in this province require all absorption systems to be constructed at a depth which will prevent them freezing, or seven feet below the ground surface.

While the deep system is the only one which this bureau can guarantee against failure during the winter months, investigation has shown that septic tanks and absorption fields may be operated at shallow depths if the following requirements are rigidly observed and the regulations will be amended accordingly.

(1) The absorption field, whether shallow or deep must be constructed in ground which will absorb water. The more absorbent the soil, the less danger there is of the field freezing.

(2) The septic tank must not be built above ground level. This has been done in some instances, in an effort to provide a shallow absorption field and the practice has invariably been accompanied by the freezing of the liquid in the tank.

(3) The septic tank and all pipe lines, manholes and field tiles must be covered

with a layer of straw at least 12 inches in thickness during the winter months.

(4) The tank and absorption field must be kept in continuous use throughout the winter. If the house is left vacant for a few days the system will freeze and be rendered useless until the frost goes out of the ground.

Discharge of Effluent on the Ground Surface

Where the ground is incapable of absorbing liquid, the only practicable system of disposal is to pump the effluent from the septic tank and remove it to some distant point, where it may be discharged on the ground without giving offence.

This is the only system permissible for the disposal of sewage from houses situated within the limits of cities, towns or villages, and which are not connected with a sewerage system.

Sewage Pump Well

The effluent from the septic tank should flow into a pump well which is designed to hold at least one week's flow of sewage.

In a household of six the minimum capacity of the pump well would be 180 x 7, or 1260 gallons, or a tank 6 ft. by 6 ft. by 6 ft. deep.

The liquid may be pumped from the tank by hand or by power as desired.

In towns and villages the council should provide a tank-wagon and undertake the regular emptying of all tank effluents.

In rural districts the effluent should be discharged on the ground at a point as far removed from the house as practicable and in no case nearer to the house than 100 feet.

During the winter months this distance should be considerably increased for the frozen effluent will accumulate on the ground and cause a serious nuisance when the frost goes.

A planting of trees or bush with good surface drainage makes a suitable area on which to discharge the effluent.

Location of Sewage Pump Well

The sewage pump well and septic tank should be situated at least 50 feet from the house.

The drain from the house to the tank should be four-inch vitrified pipe with cement mortar joints laid carefully at a grade of 1 in 50 or a fall of approximately one-quarter of an inch to the foot.

Vegetable Gardens

The question has often been asked "is it safe to eat vegetables which have been grown on soil irrigated by a septic tank effluent?"

It is only safe if the vegetables have been cooked.

Vegetables which are eaten raw, such as radish and lettuce should not be grown on areas which may receive a sewage effluent.

Distance of Sewage Pump Well and Absorption Field From Water Supply.

It is impracticable to state any minimum distance from an underground water supply at which it is safe to discharge sewage on or into the soil.

The sewage disposal system and the well should be as far removed from each other as possible and in no case should a septic tank effluent be discharged on or into the ground within 100 feet of a well or other water supply.

OPERATION INSTRUCTIONS

Septic Tank.

The scum which gathers on the surface of the tank should not be disturbed unless it exceeds 12 inches in depth when part of it should be removed.

The scum, by excluding light and air from the liquid, provides the conditions under which the bacteria multiply on its under surface and in the solid which settle to the bottom of the tank.

When the solids in the base of the tank reach a depth of 15 inches they should be removed and ploughed into the ground.

This will necessitate pumping out the tank once or at the most twice yearly.

Dosing Chamber.

Before starting the system the syphon must be filled with water. The manhole cover on the dosing chamber should be lifted once a week and the action of the syphon examined.

If the flush is not acting properly the bell of the syphon should be removed, the syphon filled with water and the bell replaced.

Sewage Pump Well

A float with indicating rod projecting through the roof of the pump well can easily be arranged to show when the well requires emptying.

The sewage should not be allowed to rise higher than a level which is six inches below the overflow from the septic tank.

Any solids or scum which may be present in the pump well should be removed when the septic tank is being cleaned out.

Care should be taken to prevent fouling of the ground below the pump discharge. A watertight chute or pipe should be used to convey the liquid to the wagon or to the point at which it is discharged on the ground.

Absorption Field

The cover on the distributing manhole should be lifted once weekly and the operation of the system noted.

Protection Against Frost

Not later than October 1st of each year all pipe lines, field tiles, manholes and tanks which are less than seven feet below the surface should be covered with a layer of damp pressed straw 12 inches thick.

This layer should extend four feet on each side of tanks and pipes.

Manure must not be used for this purpose; not only is it insanitary, but it will not protect the ground sufficiently against frost.

General Conclusions.

The conclusions arrived at from a study of the information embodied in the foregoing pages may be stated briefly as follows:

1. The cesspool is an obsolete and unsatisfactory method of sewage treatment or disposal. The construction of cesspools is contrary to law.

2. No matter what means of final disposal of the effluent are adopted, a septic tank must be built in every case for the treatment of the sewage.

3. A septic tank will remove the greater part of the solids from the sewage and so lessen its offensiveness. Those solids which remain in the tank will accumulate and will require to be removed by hand, once or twice yearly.

4. The effluent from a septic tank is just as dangerous to health as the raw sewage discharged from the house.

5. Where the basement is not drained and the soil pipe leaves the house at a shallow depth the septic tank should be built close up to the house.

6. No septic tank effluent or liquid wastes may be discharged into a creek, river or lake, unless a special permit has been obtained from the commissioner of public health.

7. The discharge of a septic tank effluent or of liquid wastes into the subsoil within the limits of any city, town or village in the province is contrary to law.

8. If the subsoil shows signs of sand or gravel an absorption field should be made and the effluent from the tank disposed of underground.

9. If the subsoil is clay throughout, the construction of an artificial absorption field is useless, and unless a surface outlet is available the tank effluent must be pumped.

10. Septic tanks and pipe lines may be successfully operated during winter at shallow depths if certain requirements noted in this report are observed.

11. A system of sewage disposal whether surface or underground should be as far removed from the house and from any source of domestic water supply as practicable.

EDITORIAL COMMENT

USING THE HELPS PROVIDED

THE present turn of business is said to call for the exercise of all possible factors to help merchandising. It has been described as a return to a period when "real salesmanship counts." The educational work undertaken on behalf of the plumbing and heating engineers by the National Trade Extension Bureau of the U.S., much of which has been extended to the Canadian trade through *Sanitary Engineer*, is a potent factor in helping to speed a return to normal conditions in this trade. In this issue will be found a sample of the results obtained by a Canadian plumber through the application of some of the helps offered by the U.S. Bureau. Much valuable data along similar lines is outlined in every issue of *Sanitary Engineer*, and due attention should be given all such helps in the interests of a quicker return to normal conditions.

THE PROBLEMS OF HEATING COSTS

THE annual coal consumption in Canada for domestic purposes is nearly 7,000,000 tons which, if we allow a cost of \$15 per ton, represents a yearly expenditure of some \$105,000,000, says Conservation. With increasing population and the gradual extension of settlement northerly, this consumption will naturally increase; any effort, therefore, having for its object a substantial reduction in our domestic heating bill, is worthy of public attention.

The hope of relief, entertained by some, through electric heating from our water-powers, has been definitely shattered by the fact that, outside of the question of cost, the demand would far exceed the supply available. For instance, in Quebec and Ontario, alone, assuming a population of some 5,000,000, a total of probably not less than 10,000,000 h.p.—and costing from \$150,000,000 to \$200,000,000 per annum—would be required to supply electrical heat. The power available within the more thickly populated portion of these two provinces, even including Canada's equity in the great possibilities of the St. Lawrence and Niagara rivers—the greatest water-power rivers in the world—only amounts to about 5 1-2 million horse power.

The possibilities and economic efficiency of central heating plants are thought to be particularly applicable to Canadian conditions or to any country with long winters. Due to the initial cost of the underground distribution piping system, the plants usually involve heavy overhead expenses; when the plant is used intensively and during long periods each year, the charges can be spread over longer periods than would be the case for systems only used during shorter periods, as in certain localities in the United States. Another economy would result from the possibility of using the cheaper grades of coal, instead of the expensive anthracite now commonly used in Eastern Canada. Suitable boilers with automatic stokers and smoke-consumers would overcome some of the present disabilities in the use of the inferior fuels.

PROPHYLACTIC PLUMBING

THAT formidable looking word means "guarding against"; more particularly, through usage by medical men, guarding against disease. Ever since the days of open plumbing every step of progress might be said to have made plumbing still more "prophylactic" from the standpoint of sanitation—of guarding against disease.

But we are thinking of "prophylactic" plumbing in another sense—in the sense of a different preventive service. No modern sanitary engineer gives a place of primary importance in his business to the petty emergency repairs of winter—the frozen pipes and other mishaps of cold weather. We hope the modern sanitary engineer sends "Bill" to look after these because the sanitary engineer, himself, is busy with a big contract.

We hope to see every sanitary engineer giving such "prophylactic" service—service that guards against frozen pipes and emergency repairs, service that prevents defects, builds good will, and more and greater business, so that about the time "Bill" is ready, through experience, for this larger, worthier work, his old job on emergency repairs will have practically disappeared. Do not neglect service. This change of character in a plumbing business comes through attention to quality, efficiency, service.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—Long & Maynard, plumbers, have dissolved partnership.

CRANE COMPANY WAREHOUSE IN LONDON

London, Ont.—The Crane Company, of Chicago, has purchased a site for a warehouse on York street opposite the Grand Trunk freight sheds, and plans are being prepared for a three-story warehouse. The firm plans to make London a distribution center for hardware and plumbing supplies for Western Ontario. Work on the new building will be commenced in a few weeks.

READJUST HEALTH AND WATERWORKS DEPARTMENTS

Winnipeg.—Readjustment of civic department duties, to be recommended by a sub-committee, will place the domestic and high pressure water systems completely in charge of the superintendent of waterworks, city officials announced.

The waterworks superintendent under the scheme will take over from the engineer's department the operation of wells, reservoirs, well lines and the pumping stations as well as the high pressure plant.

The street commissioner will take over from the health department the collection and disposal of garbage, refuse and ashes.

CITY LAW TO REGULATE NEW HEATING PLANTS

Toronto.—The city building by-law is to be amended in accordance with legislation just obtained by the city giving it power to regulate the installation of heating plants in houses. The new bill does not empower the city to specify the size of furnaces, although there has been considerable complaint that some installations have been too small to heat the houses in which they were set up. The city did not ask for this provision, inasmuch as it would be held responsible in case the heating plant was inadequate. All the city architect will be able to do is to make regulations regarding the installation. These will have reference to the position of the furnace and the pipes. In some instances pipes were found to be horizontal instead of slanting upward, the effect being that the heat would not rise to the upper floors. The city architect will frame a regulation fixing the angle at which they should be placed and also as to their location from a fire standpoint.

"Store Trade Brisk," Says Plumber But Outside Work is Slack—Says Ottawa Architects Hold Out Little Hope of Much Building

IN the opinion of John McKinley, of the Ottawa plumbing firm of McKinley and Northwood, the outlook for the plumbing and steamfitting trade locally is anything but promising. "We have one or two big jobs for the summer, and I understand two or three of our competitors have also lined up some big work," said Mr. McKinley, "but on the whole the trade will suffer as it has not suffered for several years from lack of work."

"No matter what architects you go to, they all tell you the same story: nothing doing, and very little prospects of there being anything doing for several months."

"As far as prices are concerned there has been a slight reduction in some lines of hardware and plumbing material, but general building material continues high and is responsible for delaying a lot of work which would go ahead otherwise."

There were two big jobs here which we had hoped tenders would be called for this spring, but at present there are no indications of any movement in that direction. I refer to the new civic hospital, which is conceded to be a three-million-dollar job, and the new collegiate institute, on Bronson Avenue, which will run into the hundreds of thousands. A number of us are waiting for a chance to tender on the plumbing for these jobs.

"The winter months have been exceedingly dull for the plumbers in general. The weather has been exceptionally mild and as a consequence there have been very few mishaps. Conditions are more unsettled than they have been for years and I do not think this applies to Ottawa alone."

"As far as we are personally concerned our store trade has kept fairly brisk, but the outside work has been very slack."

Alberta Plumbers in Convention

Many Interesting Addresses Delivered Before Annual Convention of Alberta Sanitary and Heating Engineers in Lethbridge

LETHBRIDGE, ALTA.—The annual convention of the Alberta Association of Sanitary and Heating Engineers has just been concluded here and the deliberations during the three days of conference were very helpful. The convention was opened in St. Augustine's Hall with the usual procedure of registration, receiving reports and appointing committees. At the afternoon session of the opening day a lecture entitled "Septic Tanks for Domestic Purposes; Their Construction, Action and Preparation of Disposal Beds" was delivered by S. Jennings, Edmonton. This address was followed by a general discussion.

Jas. Marr, sr., Calgary, addressed the convention on the subject "Proposed Method to Reduce the Cost of Plumbing Installations in Small Houses." This address brought out many interesting points considered in the following discussion. This session was concluded with some comments on trade conditions

with representatives of the wholesale trade.

At the second day's session reports of committees were received, officers nominated and other business transacted. This was followed in the afternoon by an address by E. J. Young, Calgary, on the subject, "Fixed Charge and Operating Cost and Method of Conducting Business." This was followed by much interesting discussion. An address on "Simplified Form of Bookkeeping and How to Keep Records of Contracts" was given by Wm. Parker and E. J. Sehl, of Lethbridge. The final session consisted of the election of officers and other business.

A feature of the convention was the presentation of the proposition of the National Trade Extension Bureau. Mention was made of the various services of the bureau along the lines of fixed charges and operating costs, estimating and contracting, accounting, etc.

EXTEND PIPE LINE

Winnipeg.—The provincial Government will bear part of the cost of extending the pipe line system for supplying the town of Tuxedo with water, according to an announcement by Hon. C. D. McPherson. The cost of the project will be about \$130,000, it is estimated. Legislation authorizing the expenditure of the Government's share may be introduced into the legislature this week.

COMPEL SANITARY DISH WASHING

Winnipeg.—Regulations to compel the sanitary cleansing of dishes in restaurants, pop factories, hotels and other public places where food is consumed in large quantities will be asked by the city department of food inspection. The object of the regulation, which will be presented to the city council in the form of a by-law, is to prevent the spread of disease and epidemics by contagion. "The theory of aerial contagion is gradually giving way to a theory of contagion by direct contact with germ carriers," said Inspector Rigby.

"The fact that germs are transmitted by unclean dishes is widely accepted by authorities and we hope to eliminate a great deal of danger of contagion by stricter regulations for dish washing in public places.

"The by-law will be submitted to the council for consideration at an early date, and will be governed by practical requirements of the places concerned."

BAD WATER IN PORT CREDIT

Port Credit.—The water supply of Port Credit does not meet with the approval of the Provincial Department of Health. The village council has been notified that 98 per cent. of the water in the wells of the village is polluted and unfit for use.

At its meeting the council discussed the problem. A municipal water supply system, it was felt, would cost more than the village could afford. Estimates on the cost of a new system, presented by E. A. James & Company, provided for an expenditure of \$100,000 for the installation, without providing for the small mains. This estimate is \$50,000 less than the one presented last December, the difference being due to lower cost of materials and labor.

The council is anxious to provide pure water for the town, but it feels that the cost of a waterworks system is prohibitive. The facts will be laid before the Government.

Ottawa.—Damages to the extent of \$600,000, together with an injunction to prevent further use of the "Moore Filter," an appliance held to be "especially adapted for the filtration of previous metal bearing slimes," claimed by the Moore Filter Company, of New York, from the Nipissing Mining Company of Ontario in a statement of claim filed with the registrar of the Exchequer Court in Ottawa.

Development of Montreal Sewer System**J. H. Valiquette Discussed the Progress Made in an Interesting Paper Read Before the Montreal Branch of the Engineering Institute of Canada**

Montreal.—The sewerage system of Montreal was discussed in an interesting paper by J. H. Valiquette, of the technical branch of the city engineering department, before the Montreal branch of the Engineering Institute of Canada, commencing with the incorporation of the city in 1841, when there was practically no modern sewerage system, to the present day network of conduits, representing 525 miles of sewer construction.

From 1841 to 1851 the work had progressed to 22 miles of brick sewers and 3½ miles of wooden conduits. These proved to be unsatisfactory, the wood fast decaying and the brick work continually falling in. Engineers estimated at this time that repairs had cost more than it would have taken to build a construction that would last a century.

Better progress was made in the years following; from 1860 to 1874, numerous new sewers were built. In 1862 a by-law was passed empowering the city to construct sewers in any part of the city. In 1875 one of the main sewers, Craig Street, was commenced and finished in 1878. This sewer was still in very good condition. In 1888 a high level

sewer was built to overcome floods consequent upon connections with adjoining municipalities. From 1898 to 1916 the city had nearly trebled its population, and sewers had to be constructed in accordance. It was in this latter year that most of present system was completed.

Cause of Disease

Sir John Kennedy also spoke of conditions in the early '50's, when there was a very imperfect system of drainage. It was in those days that the terrible outbreak of cholera occurred in Montreal, when this disease proved fatal to many people. A canvass was made as to the cause of the outbreak, the old ideas of food, bad fruit and other things being given as the chief reason for so many deaths. Finally, however, the solution was found in the water supply, poisoned by contact with the sewage of the city. It was this outbreak, Sir John remembered, that had directed attention to the necessity for modern underground sewers and which had spurred the city fathers of those days to adopt plans leading ultimately to the system as it existed to-day.

Doings in Ottawa and District

The city of Ottawa will very shortly call for tenders for garbage collection. During the last three years the work has been carried on by the city under the supervision of the Commissioner of Works, but it is now felt that a considerable saving might be effected by having it done by contract. In fact, an offer has been made by Mr. Thomas O'Neil, of Ottawa, to do the work at a saving of approximately \$30,000 the first year.

Decrease in Outside Privies

A statement has been issued by the local health department to the effect that the vigorous campaign waged by the Department of Health the last few years to rid the city of outside privies has been productive of most encouraging results. In 1917 the amount spent on outside privy cleanings was \$6,000, while last year there were 196 cleanings, at a total cost of \$880. The city has now adopted the rule of insisting on the installation of sanitary arrangements on streets where drainage is provided.

Junk Business Unsanitary

Residents in the Chaudiere district are now engaged in an effort to rid the city,

and particularly that section of the city, of junk dealers, owing to the unsanitary nature of their occupation. The first victory was scored in the local police court on March 8, when Sachs Bros., one of the biggest junk firms, were fined \$10 and costs for keeping bones without a license. Several other cases of a similar nature are to be dealt with in the near future. In the meantime the city is asked to establish an area outside for junk shops and to discontinue issuing licenses for junk shops inside the city limits.

Criticizes Banks

Discussing building conditions with the local correspondent of Sanitary Engineer, J. Moffatt Ross, prominent real estate agent, said he thought it was a crime that the banks were sitting so tight upon their coffers. "If these banks would loosen up and lend some money to responsible builders, both this city and other cities throughout Canada would benefit in more ways than one," he said. Mr. Ross said he thought the Government should take a few million dollars a year away from the banks to teach them a lesson.

Announcement re Status of Tinsmiths

On Eve of Test Case to Establish Whether Tinsmiths are Liable for Taxation as Manufacturers, Government Issues Statement Removing Liability Pending Outcome of Case

OTTAWA, Ont.—Just as the stage setting was being completed for the hearing of the test case to establish the status of certain trades for the purposes of taxation, word has been given out by the Department of Customs and Inland Revenue that pending the decision in the test case those merchants who have been held to be liable for the manufacturers' license and tax will not be held so liable. The statement as signed by the Assistant Deputy Minister of Customs and Inland Revenue and approved by the Deputy Minister is as follows:

"Pending a decision in the 'test' case now before the court respecting the question as to whether merchant tinsmiths (etc.) are 'manufacturers' within the meaning of Section 19 BBB of the Special War Revenue Act, you are instructed that the following merchants will not be required to secure sales tax license, nor to pay sales tax, namely, merchant tinsmiths, harnessmakers," etc.

Subject of Keen Argument

The point involved has been a keen subject of argument for some time. Practically every gathering of tinsmiths has taken objection to the regulation which classed a tinsmith as a manufacturer merely because he makes a tin cup, an eavetrough or a stovepipe. The injustice of compelling such a merchant to take out a manufacturer's license at \$5 and compelling him to collect 2 per cent. sales tax on all such articles manufactured was early realized and on objection being taken, it was stated that a test case would be held. Meanwhile the Deputy Minister of Inland Revenue was credited with having stated that pending the test case no prosecutions would be made against merchants who failed to comply with the regulation. On the strength of his word the Retail Merchants' Association advised members who were liable that they need not comply with the law, and that the association would take the responsibility for such non-compliance. Nevertheless there were many who complied with the regulation in fear of the penalties provided by the Government.

The announcement just issued by the Deputy Minister of Inland Revenue is sufficient authority for all tinsmiths who are liable and who have withheld any such action, to continue without such license, pending the outcome of the test case.

Significant of Final Outcome

Such an official announcement coming out on the eve of the hearing of the case is considered by many to be significant that the stand taken by the Government will not be upheld. In any case it will be

an interesting discussion, and the result will have an important bearing on the future status of tinsmiths in Canada. Developments in this matter have been outlined fully in past issues of Sanitary Engineer and future issues will contain a complete report of the proceedings of the case at Ottawa. The expression of opinions of tinsmiths through Sanitary Engineer and at special gatherings has no doubt had an important bearing on the case and has undoubtedly helped to bring forth the assurance just given that they will not be liable pending the outcome of the case.

BUILDING TRADES OPPOSE WAGE SCALE

Montreal.—Some trouble may arise as a result of the application of the new scale of wages approved of by the General Contractors' Association. The bricklayers have apparently been the first body to show its opposition, and one firm has been notified that work would cease at once. As far as the other trades are concerned, no definite decision as to a strike has been reached. No action has yet been taken to reduce the plumbers' wages, and whether this will follow in the immediate future remains to be seen.

AN ACCIDENT QUITE LIKELY TO OCCUR WITH PLUMBER

Montreal.—An eight-year-old girl fell into an unprotected open manhole on a downtown street corner in Montreal. No hope is entertained that the child has survived, searchers only hoping that the body may be recovered.

The manhole had been opened for the purpose of disposing of snow and ice picked up off the streets, witnesses claiming that no protective grating was placed over the opening, nor was there any fence in the street to warn pedestrians. The Director of Public Works states that employees of the Road Department have orders to always place a grating and a protecting fence when opening manholes, and a thorough investigation will be made.

This exemplifies the great danger that lurks in the wake of the thoughtless or careless actions of persons held responsible for the safety of the public, and demonstrates that too much care cannot be taken to safeguard against accidents of such a nature.

Oftentimes the plumbing contractor must needs excavate in front of a private dwelling for the repairs to the water or sewerage system, or to install a plumbing contract, and great pains should be exercised to make sure that proper notices and warnings are posted.

WESTERN ONTARIO NEWS

George Ross, Blenheim, Ont., wants prices on heating and plumbing for new \$5,000 residence to be built in spring.

* * *

Frank Gunning, Ruthven, Ont., is preparing plans for new \$4,500 bungalow and wants prices on heating and plumbing.

* * *

John Grieve, Avonton, Ont., is preparing plans for new residence and wants prices on heating and plumbing.

* * *

Charles Mooney, Blenheim, Ont., will start work immediately on new \$4,000 residence and wants prices on heating, plumbing and electrical.

* * *

Joseph McLean, of Forest, Ont., is preparing plans for new \$5,500 bungalow and wants prices on heating, plumbing and electrical work.

* * *

John A. Mundy, of Harriston, Ont., has been awarded the contract for heating system and metal work for new \$10,000 school for S. S. No. 18, Minto Township.

* * *

Plans are to be prepared for a \$35,000 addition to the high school at Petrolea, Ont. Prices wanted on heating equipment. J. B. Dale, chairman of board.

* * *

Council at Petrolea, Ont., plans to submit bylaw to ratepayers to extend hydro to the waterworks pumping station and operate it electrically.

* * *

Gordon Luckham, of Sarnia, Ont., leaves shortly for Fort Norman, Yukon Territory, having signed a contract to look after pipe fitting work for the Imperial Oil Co. for three years.

* * *

Robert M. Birce, Essex, Ont., contemplates erecting a new business block at a cost of \$25,000. Owner will prepare plans.

* * *

Last Thursday evening robbers attempted to break into the home of John Eggett, at London, Ont. A collie dog however raised an alarm and the intruders made a quick getaway.

* * *

Prices are wanted on hot air heating and electrical work for new \$30,000 church for the Christian Church congregation, London. W. G. Murray, Dominion Savings Building, architect.

* * *

Joseph Hamilton, 813 Richmond Street, London, wants prices at once on hot air heating, plumbing and electrical work in connection with \$9,000 dwelling to be erected in spring.

* * *

T. A. Bryan, 414 Grosvenor Street, London, is preparing plans for remodeling residence into duplex and wants prices on heating, plumbing and electrical work.

By-law will be submitted to the rate-payers at Kingsville, Ont., shortly regarding erection of new \$70,000 high school.

* * *

Noble and Rich, of London, Ont., have been awarded contract for heating and plumbing in connection with remodelling of London Loan Company's office.

* * *

Ingram and Davey, hardware and plumbing, St. Thomas, Ont., are preparing plans for extensive alterations and an addition to their premises.

* * *

The school board of Walkerton, Ont., contemplates building a large addition to the high school and plans and estimates are to be prepared shortly.

* * *

John Douglas, Avonbank, Ont., wants prices immediately on heating and plumbing in connection with new \$5,000 dwelling to be erected this spring.

* * *

Norman A. Roberts, Roberts Engraving Co., London, is preparing plans for new \$7,000 bungalow and is interested in prices of heating, plumbing and electrical equipment.

* * *

Tenders will be called early in April for new eight-roomed school at Amherstburg to cost \$65,000. Steam heating, lavatories and plumbing. Prices wanted on all work. Dr. Abbott, chairman of board.

* * *

Plans are being prepared at Amherstburg, Ont., for new sewers on Alma, Balaclava and George Streets to cost \$35,000. Tenders will be called shortly.

* * *

Ralph Tofflemire, Lakeshore, Wheatley, Ont., is preparing plans for new \$4,000 residence and wants prices on plumbing and heating.

* * *

At the annual meeting of the Western Fair Association held in London recently Ben Noble, of the plumbing firm of Noble & Rich, was elected a member of the manufacturers' committee.

* * *

Prices are wanted on heating in connection with new school to be erected at Coldstream, Ont. Alex. Stewart, Ilderton P.O., is chairman of the trustees.

* * *

The Crane Company, of Chicago, has purchased property in London and will shortly erect a large branch warehouse from which the trade in Western Ontario will be supplied.

* * *

L. G. Bridgeman, Bank of Commerce Building, London, Ont., is preparing plans for new residence to cost \$16,000. Hot water heating, plumbing and electrical work.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

WATERWORKS EXTENSIONS

Edmonton, Alta.—Tenders will be called shortly for supply of 6 inch and 8 inch cast iron pipe to cost about \$30,000 for city. J. W. Turner, Supt. Waterworks Dept.

London, Ont.—Previous contract for erection of filtration plant costing \$35,000 for city, which was placed with Permit Co., New York, has been cancelled and Utilities Commissioners will receive new tenders, no closing date set. Plans with E. V. Buchanan, manager of commission, Hydro Offices.

Winnipeg, Man.—Tenders will be called for construction of sewer in one street for city.

* * *

CONTRACTS AWARDED

Toronto.—Heating contracts for two stores and apartments, costing \$12,000 for P. H. Finney, 79 Adelaide St. E., are awarded to Howard Plumbing & Heating Co., 21 Howard Ave.

Calgary, Alta.—Plumbing and heating contracts for Technology and Normal school costing \$591,975 for Provincial Government are placed with James Ballyntyne Co., Ltd., Wall St., Winnipeg.

New Toronto.—Tenders for a new four roomed school, 21st street, were awarded by the Public School Board. James A. Wickett's tender for \$47,987 was accepted. The contract for plumbing, heating and wiring was awarded to A. J. Ingram, of New Toronto, for \$12,473.

Toronto, Ont.—City awarded following contracts for sewer construction: One street, McNight Construction Co., 88 St. David St.; two streets, A. Cavotti, 257 Euclid Ave.; one street, Murphy Contracting Co., 8 Wychwood Park; one street, National Contracting Co., 9 Gar-nock Ave.

* * *

TENDERS WANTED

Ignace, Ont.—Arthur Read, secretary-treasurer Ignace school board, will receive tenders for all trades required for erection of school costing \$21,000. Plans with secretary-treasurer, and W. W. Lachance, architect, 98 St. Paul St., St. Catharines, Ont.

Great Village, N.S.—Tenders will be called shortly for erection of Masonic Hall to cost about \$5,500 for Corinthian Lodge A. F. & A. M. Jos. S. McLellan, architect, Great Village, N.S.

Fredericton, N.B.—Tenders will be called shortly for sewer extension estimated to cost \$40,000 for city. G. C. McDowell, engineer, 282 York St.

Kingsville, Ont.—Rev. J. M. Horton, rector Epiphany Church, will receive tenders, no closing date set, for erection of Parish Hall, estimated to cost \$12,000. Plans with Thos. Jenner, architect.

Kitchener, Ont.—Ross & McDonald, 1 Belmont St., Montreal, and 61 Front St.,

Toronto, architects, have plans and will call tenders for erection of Y.M.C.A. building estimated to cost \$150,000. Plans with J. F. McKellar, secretary, Kitchener.

Montreal.—Heating tenders will be received for stores and office costing \$85,000 for University of Montreal.

* * *

CONSTRUCTION

Cobourg, Ont.—Provincial Government, Dept. of Public Works, will repair hospital.

Erection of addition to school for Separate School Board, 477 Jarvis St., is contemplated.

Separate School Board, 477 Jarvis St., contemplates building school in Holy Rosary Parish.

Repairing Hospital is contemplated by Public Works Dept., Provincial Govt.

Paincourt, Ont.—School section No. 3 plans erection of convent costing \$10,000. Wm. E. Primeau, secretary-treasurer.

Parry Sound, Ont.—Repairs to public buildings estimated to cost \$42,000 are contemplated by Public Works Dept., Provincial Government.

West Vancouver, B.C.—Erection of new school and addition to school at cost of \$50,000 is contemplated by West Vancouver School Board. W. C. Thompson, secretary.

Chatham, Ont.—Erection of a nurses' home at estimated cost of \$50,000 on Emma St. is contemplated by General Hospital Board. C. E. Beeston, secretary-treasurer, Chatham.

Whitby, Ont.—Erection of school is contemplated by town council. A. T. Lawler, chairman School Board. Repairing Hospital is contemplated by Public Works Dept., Provincial Government.

Halifax, N.S.—General contract for alterations to office building costing \$40,000 for Phoenix Fire Insurance Co., 17 St. John St., Montreal, Que., is awarded to John MacInnes & Son, 61 Lower Water St., Halifax.

Walkerton, Ont.—School board contemplates erecting new wing to High School and equipping gymnasium and new physical and chemical laboratory, work estimated to cost \$25,000.

Toronto, Ont.—Provincial Government, Dept. of Public Works, has included in supplementary estimates repairs to Osgoode Hall, maintenance and repairs to Parliament Buildings, and repairs to Normal and Model Schools.

Deloraine, Man.—J. M. George, secretary-treasurer of Deloraine Hospital Board, will receive tenders until March 24th for erection of hospital estimated to cost \$16,000. Separate tenders will be received for several sub-trades. Plans with secretary-treasurer, and J. H. G. Russell, architect, 1110 McArthur Bldg., Winnipeg.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

SEVERAL changes are shown in prices of staple lines, though in most cases the reductions are small. A new list issued shows a decline in the price of steel pipe, but wrought iron pipe is unchanged. Some lines of pipe fittings have also been revised, and nipples show a lower level. Reductions have been made in the price of lead traps and bends, and most grades of solders show a slight decline. The lighter gauges of corrugated galvanized sheets are lower. Plumbers' oakum shows another reduction in price, and the tendency in cotton waste is easier.

Bar iron and some lines of steel are showing lower quotations, but sheets and plates are being held at recent declines. Copper and brass in sheets, rods and tubing are at a lower level. In ingot metals there is not a great change, and tin is practically the only metal that shows much varia-

tion since the last report, and this metal continues to sag, but lead and spelter are inclined to be firmer. No changes have been made in prices of soil pipe, enamelled wares, compression goods, range boilers or conductor pipe.

The outside primary metal markets are reported quiet, and the offer of lower quotations does not stimulate the demand. Non-ferrous metals are regarded as exceptionally low priced at present. Iron and steel products continue to show declines in prices, but Pittsburgh reports indicate that the steel industry as a whole is not operating at much more than 40 per cent. of capacity.

A slight increase in business activity is reported and another two or three weeks should show a better demand for plumbing goods with the approach of spring and a revival of building operations.

MONTREAL

MONTREAL, March 12.—Many staple articles and lines of plumbing goods have reached lower levels. Although slight reductions in most cases, they are of interest to the plumbing trade. Wrought iron and steel pipe are now selling under a new list, No. 49, lower prices being given on steel piping. Relative to this, nipples have been revised. Corrugated sheets in 26 and 28-gauge are reduced \$1 per 100 sq. ft., other gauges show no change in prices but are reported easier. Lead traps and bends are quoted 10% off list, and solders of all grades, except wire solder, are one cent per pound less. A reduction of from 20 to 30 cents per 100 pounds is quoted on base prices of bar iron and steel, while the finest grades of steel are 1½ cents a pound lower. Waste materials are easier, with lower prices given on many scrap metals. Enamelled ware, soil pipe, plumbers' oakum, range boilers and compression goods all maintain their former prices. Eavetrough and conductor pipe are also holding at same discounts.

An improvement is noted on most lines and business is said to be gradually becoming more active. With open weather prevailing, toward the end of the present month should revive the trading of practically all lines of plumbing goods.

Candlewick Now 46c Pound

Montreal.

A new lower price is made on candlewick packing and it is now selling at 46 cents per pound.

Sink Bolts 62½% Off List

Montreal.

The new discount on sink bolts is 62½ per cent. off list price.

Piping Under New List

Montreal.

Wrought iron and steel pipe is now selling under a new list. List No. 49 is now substituted in place of No. 48. Practically all sizes of steel pipe are

quoted about 4 per cent. lower, while wrought iron piping remains unchanged as under the old list. Stocks are in good shape, and the demand has shown some improvement over the previous slow months. Following is a copy of the new list:

Price List No. 49.		March 1st, 1921			
Standard Butt-weld Pipe.					
Per 100 feet.					
	Steel		Gen. Wrot. Iron		
	Blk.	Galv.	Blk.	Galv.	
¾ in.	\$ 6 50	\$ 8 50	\$	\$	
1 in.	5 07	7 17	5 91	8 01	
1¼ in.	5 07	7 17	5 91	8 01	
1½ in.	6 76	8 29	7 95	9 48	
2 in.	8 34	10 41	9 95	12 02	
2½ in.	12 33	15 39	14 71	17 77	
3 in.	16 68	20 82	19 90	24 04	
3½ in.	19 94	24 89	23 79	28 74	

2 in.	26 83	33 49	32 01	38 67
2½ in.	42 41	52 94	.....	.....
3 in.	55 46	69 23	.....	.....
3½ in.	70 38	86 94	.....	.....
4 in.	83 39	103 01	.....	.....

Standard Lapweld Pipe S/C

		Per 100 feet.			
		Steel		Gen. Wrot. Iron	
		Blk.	Galv.	Blk.	Galv.
2 in.	\$30 53	\$37 19	\$35 71	\$42 37	
2½ in.	45 92	56 45	54 11	64 64	
3 in.	60 05	73 82	70 76	84 53	
3½ in.	72 22	88 78	85 10	101 66	
4 in.	85 57	105 19	100 83	120 45	
4½ in.	99 70	1 24	1 30	1 54	
5 in.	1 16	1 44	1 52	1 80	
6 in.	1 51	1 87	1 97	2 33	
7 in.	1 96	2 44	2 53	3 01	
8 in.	2 06	2 56	2 66	3 16	
8L in.	2 38	2 95	3 07	3 64	
9 in.	2 85	3 54	3 67	4 36	
10L in.	2 64	3 28	3 41	4 05	
10 in.	3 40	4 22	4 39	5 21	

Some Fittings Revised

Montreal.

Relative to the change in pipe prices, nipples show a revision in price. From ½ to 4 in. close and short, are now 40 per cent. off, longer 50 per cent. off. From 4½ to 8 in., close and short, 30 per cent. off, and longer 40 per cent. off list. There is no change in the other lines of fittings, and following is the changed price list:

Bushings, cast	20%
Do., malleable	20%
Flanges	20%
Plugs	17½%
Flange Unions	7½%
Malleable Unions	32½%
Nipples, ½ to 4" close and short.....	40%
Do., long	50%
Do., 4½ to 8" close and short.....	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	Blk. Galv.
Class B	0 20 0 28
Class C	0 13 0 20
Add 17½%.	

Enamelled Ware Prices Hold

Montreal.
Prices on enamelled ware are holding unchanged, with more activity now being shown in the demand. Dealers report a decided improvement during this month, and it is thought that sales will now become better as the season is opening up, and building will before long be in evidence. Present quotations are as follows:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 00 \$5 92 \$5 84
18 x 30	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories	
17x19" Apron F139 or P4045	12 24
18x24" Apron F154 or P3845 or P3847 ..	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345	10 08

Closets Also Unchanged

Montreal.
Dealers in enamelled ware report that contracts are now coming to hand in goodly numbers, and this has its direct results on the sales of closets. The demand has increased materially during the past few weeks, but dealers have only been ordering their present needs. Prices on closets are unchanged and are quoted as follows:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat ..	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

No Change in Range Boilers

Montreal.
Range boiler prices are maintained, holding at the declines of the first of the year. In line with other lines of plumbing supplies, these are more active than they were during the winter months, and the demand will likely increase as the season advances. Quotations are as follows:

RANGE BOILERS—	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	00
35-gallon	15 00	17 00	00
40-gallon	17 00	19 00	00
52-gallon	24 00	26 00	00
66-gallon	32 00	34 00	00
82-gallon	42 00	44 00	00
100-gallon	50 00	52 00	00
120-gallon	60 00	62 00	00

Some Corrugated Sheets Lower

Montreal.
The lighter gauges of corrugated sheets show a decline of \$1.00 per 100 sq. ft. list, applying to both 28 and 26 gauge. The remaining gauges are unchanged, but are by no means steady. Stocks are quite heavy in the hands of the jobbers, the demand continuing light. Following are present prices:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

Sheet Prices are Nominal

Montreal.
Plates, black sheets and galvanized sheets are unchanged in price this week, but these prices are only nominal. Whether lower prices will prevail on sheets and plates depends to a degree on stocks at present in the warehouses, and when these are depleted it may cause slightly lower levels, as present stocks represent a higher market than exists to-day. This, however, will result in a revision rather than any great decline. Reports from the United States fields state that present prices will likely be maintained for some time at least, the price cutting seemingly being well over. Following are the nominal quotations:

PLATES—	
10 gauge	6 25
12 gauge	6 30
14 gauge	6 45
16 gauge	6 55

BLACK SHEETS—	
10 gauge	6 50
12 gauge	6 55
14 gauge	6 60
16 gauge	6 80
18-20 gauge	7 95
22-24 gauge	8 00
26 gauge	8 10
28 gauge	8 20
Sheets 36 in. wide, 10c. per 100 lbs. extra.	

GALVANIZED SHEETS—	
U.S. Standard—	
10½ gauge	10 75
28 gauge	10 25
26 gauge	10 00
22 and 24 gauge	9 85
20 gauge	9 65
18 gauge	9 65
16 gauge	9 50
English Standard—	
28 gauge	12 00
26 gauge	11 75
24 gauge	11 15
22 gauge	10 80
18 and 20 gauge	10 10

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Bar Iron and Steel Reduced

Montreal.
Lower quotations are made on practically all lines of bar iron and steel. The base prices on bar iron, iron finished machinery steel, mild steel, band steel, sleighshoe steel, tire steel and harrow tooth steel are 20 cents per 100 lbs. lower. Refined iron and toe calk steel shows a decline of 30 cents per 100 lbs. Mining tooth steel and Black Diamond tool and cast steel are now quoted at 23 cents a pound, formerly being 24½ cents. Following are the new quotations:

Common bar iron, 100 lbs.	4 00
Refined iron	5 50
Iron finish machinery steel	4 05
Mild steel	4 00
Single reeled machinery steel	6 80
Band steel	4 00
Spring steel	6 00
Sleighshoe steel	4 00
Tire steel	4 20
Toe calk steel	4 90
Harrow tooth steel	4 15
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb.	0 23

NOTE.—Refined iron is approximately \$1.50 per

100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Compression Goods Hold

Montreal.
Compression goods remain unchanged in price, with the demand reported still light, but showing some improvement in the last two weeks. Following are the prevailing quotations:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard ..	34%
Roundway stop and waste cocks, standard ..	34%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard ..	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10/7%

Boiler Tubes Quiet

Montreal.
Very little change is noted in boiler tube sales, the demand remaining quiet and orders are for very small quantities. Prices remain at the decline of two weeks ago and are as follows:

BOILER TUBES—	Seamless Lapweld
1 inch	26 00
1½ inch	27 25
1½ inch	26 25
1½ inch	29 75
2 inch	29 25
2½ inch	33 00
2½ inch	44 75
3 inch	49 25
3½ inch	63 50
4 inch	85 00

Some Lead Products Reduced

Montreal.
The demand for the different lines of lead products has kept up fairly well during the quiet winter months, and since the beginning of the month more activity has been shown. A gradual reduction has been made from time to time on the different lines, and this issue shows lower quotations on lead traps and bends and solders. Traps and bends are now selling at 10 per cent. off list, formerly being net list. Solders are one cent per pound less throughout, with the exception of wire solder. Present prices are the following:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	
Solder, guaranteed, lb.	0 26
Do., strictly, lb.	0 24
Do., commercial, lb.	0 21
Do., wiping, lb.	0 21¾
Do., wire, lb.	0 35
Zinc sheets, casks	0 14
Do., broken lots	0 15½

Soil Pipe Improves

Montreal.
A better volume of business is now being done in soil pipe and fittings. This is in accordance with many other lines of plumbing materials, and greater activity is expected to gradually become evident. No change is made in quotations of either piping or fittings, and following are present prices:

SOIL PIPE (medium and extra heavy)—
2, 3, 10%; 5 and 6-inch, 15% discount.
4-inch, 20% discount.
8-inch, add 20% to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Oakum Shows no Change

Montreal.

Plumbers' oakum is unchanged in price, selling at \$4.50 per 50-lb. bale, with an extra charge of one cent per pound for broken quantities.

Eavetrough at Same Discounts

Montreal.

Eavetrough and conductor pipe are still selling at 50 per cent. and 10 per cent. off list, and conductor elbows at 50 per cent. off, these prices being given out early in the new year. Buying is still curtailed, dealers holding off until the consuming demand opens with the spring weather. Next month will no doubt bring a more active demand. Following are the list prices and discounts:

EAVETROUGH—

O.G. Square Bead—		Per 100 ft.	
8 in.	15 90	15 inch	28 80
10 in.	17 70	18 inch	36 80
12 in.	21 20		
O.G. Round, and Half Round—		Per 100 ft.	
8 in.	16 90	15 inch	29 80
10 in.	18 70	18 inch	37 80
12 in.	22 20		

Discount 50/10% off list.

CONDUCTOR PIPE—

	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00

Discount 50/10% off.

CONDUCTOR ELBOWS—

Plain round or round corrugated—		
2 inch	5 25	
3 inch	6 00	
4 inch	10 50	
5 inch	24 00	
6 inch	29 00	

Metal Lath Unchanged

Montreal.

Prices on metal lath are unchanged, and small orders are now being forwarded. The building trade will have a strengthening effect on the sales of this material. Following are the quotations:

METAL LATH.

Painted—		
26 gauge, sq. yd.	0 42	
24 gauge, sq. yd.	0 48	
23 gauge, sq. yd.	0 57	
Galvanized, 11c per sq. yd. extra.		
Discount 10%.		

Scrap Metals Easier

Montreal.

An easier tendency is shown on many waste metals, the market remaining very dull. Yellow brass is reduced one cent per pound, scrap zinc also one cent lower. Tea lead is now down to 2 cents a pound, and heavy copper reduced ½ cent. Scrap pipe and boiler plate have declined ½ cent and 1 cent respectively. Following are the nominal quotations:

Dealer's Buying Prices.

Automobile tires	0 75
Yellow brass	0 06
Red brass	0 11
Light brass	0 04½
Scrap zinc	0 04
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton	13 00
Malleable scrap (ton)	15 00
Pipe scrap (ton)	8 50
Heavy melting steel	15 00
No. 2, busheling	5 00
Boiler plate	0 11

Stove plate (ton)	20 00
No. 1 machinery cast	25 00 28 00

Waste Prices Holding

Montreal.

Prices on cotton waste remain unchanged, with sales reported fair. Following are quotations on the different grades:

Cream, Polishing	0 22
WHITE	
XXX	0 18½
XX	0 17½
X	0 16½
XLCR	0 16½
Empire	0 15½
X Press	0 13½
6X Special	0 12

COLORED

Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

WOOL PACKING

Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS

Washed and Sterilized.

White Cotton	0 20
Colored Cotton	0 15

Above lines subject to trade discount for quantity.

Radiators and Boilers Unchanged

Montreal.

With few actual sales being made in radiators and boilers, business can hardly be reported dull. Prospects are coming to hand in good numbers, and although yet early for contracts to be let on many buildings, dealers state this season is showing well for heating contracts. Prices are holding and are as follows:

Revised radiator list prices fare for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 40% for hot water and 41% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 30%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 50 off list.

Square or sectional hot water or steam boilers, 15-in., list price.

For Ontario Government trimmings add 5 per cent. to list.

Square or sectional water boilers, 19-in to 36-

in., 2½ per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., list price. Ontario Government trimmings, add 5 per cent.

Square or sectional water or steam boilers, 48-in., list prices. Ontario Government trimmings, add 5 per cent.

Round steam boilers, standard trimmings, 5 per cent. off. Ontario Government trimmings, list price.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Ingot Metals Quiet

Montreal.

Ingot metals are generally dull and quiet, with no great change in prices. A temporary advance may be caused from from the European situation, and this is being watched very closely at present.

TIN.—Tin continues to show further declines, and £150 has been reached on the London market. The opinion is expressed, however, that the bottom has now been reached. Local price is a little easier at 37 cents.

COPPER.—Little activity is shown in copper, the market being very quiet, having a slightly easier tone if anything. Local prices show very little change and are quoted at 18½ cents for electro and 18¼ cents for casting.

SPELTER.—Spelter has had a sharp advance in London, owing to the possibility of the German supply being cut off. Whether this will hold depends on the political situation. Local price is a little stronger at 8 cents.

LEAD.—The strength shown last week in London has again faded, and the market has lapsed into dullness. Little change in prices is looked for. Local quotation 6¼ cents.

ANTIMONY.—Antimony is said to be a little easier owing to the weakness of silver. The local market continues dull and unchanged at 7¼ cents.

ALUMINUM.—This metal continues dull, showing signs of being slightly easier this week. Local price 34 cents.

* * *

TORONTO MARKETS

TORONTO, March 12.—The chief feature of the price changes in plumbing and steamfitting goods is the new list price on pipe. A reduction of a little over 4 per cent. is shown on steel pipe, but wrought remains unchanged. The changes on pipe have affected nipples, which have been revised, and show a decline. Cast iron fittings are also reduced in price. Lead traps and bends are again quoted at a lower level, and solder prices are a trifle easier. Other changes include reductions in sheets, rods and tubing of copper and brass. A reduction has been made in the price of 26 and 28-gauge corrugated galvanized sheets, but the heavier gauges are unchanged. Bar iron and steel has been reduced in price. Oakum prices have been revised, and plumbers' oakum is quoted at lower prices. In ingot metals tin is showing a decline, but the tendency of lead and spelter is firmer. Enamelled wares, closets, radiators, range boilers, conductor pipe, etc., are held unchanged. Business continues fairly quiet, but with the early approach of spring and a resumption of building activity an improvement is shortly looked for.

Reductions on Steel Pipe

Toronto.

A new list has been put out on pipe this month, making the first change in

prices on this product since last July. The new list, No. 49, shows a reduction of between 4 and 5 per cent. on black and galvanized steel pipe. Wrought iron

pipe remains unaffected. The demand is smaller now, but with the approach of spring and an increase in building operations an improvement in sales is expected. Stocks are in fairly good shape just now, and the shortages of last season have been generally made good. The following is the new list:

Price List No. 49. March 1st, 1921

Standard Butt Weld Pipe.					
Per 100 feet.					
	Steel		Gen. Wrot. Iron		
	Blk.	Galv.	Blk.	Galv.	
1/4 in.	\$ 6 50	\$ 8 50			
1/2 in.	5 07	7 17	5 91	8 01	
3/4 in.	5 07	7 17	5 91	8 01	
1 in.	6 76	8 29	7 95	9 48	
1 1/4 in.	8 34	10 41	9 95	12 02	
1 1/2 in.	12 33	15 39	14 71	17 77	
2 in.	16 68	20 82	19 90	24 04	
2 1/2 in.	19 94	24 89	23 79	28 74	
3 in.	26 83	33 49	32 01	38 67	
3 1/2 in.	42 41	52 94			
4 in.	55 46	69 23			
4 1/2 in.	70 38	86 94			
5 in.	83 39	103 01			

Standard Lap Weld Pipe S/C					
Per 100 feet.					
	Steel		Gen. Wrot. Iron		
	Blk.	Galv.	Blk.	Galv.	
2 in.	\$30 53	\$37 19	\$35 71	\$42 37	
2 1/2 in.	45 92	56 45	54 11	64 64	
3 in.	60 05	73 82	70 76	84 53	
3 1/2 in.	72 22	88 78	85 10	101 66	
4 in.	85 57	105 19	100 83	120 45	
4 1/2 in.	99 70	1 24	1 30	1 54	
5 in.	1 16	1 44	1 52	1 80	
6 in.	1 51	1 87	1 97	2 33	
7 in.	1 96	2 44	2 53	3 01	
8 in.	2 06	2 56	2 66	3 16	
9 in.	2 38	2 95	3 07	3 64	
10 in.	2 85	3 54	3 67	4 36	
10 1/2 in.	2 64	3 28	3 41	4 05	
11 in.	3 40	4 22	4 39	5 21	

Revisions in Fittings

Toronto. Further revisions have been made in fitting prices, and in malleables B and C goods are down one cent. Cast iron fittings are now 15 per cent. off list in place of 10 per cent., cast iron plugs are quoted at 25 per cent., solid ditto at 10 per cent., and countersunk ditto at net list. The changes on pipe have caused wrought nipples to be revised, and 1/2 inch to 4 inch, black and galvanized, in close and short, are now 40 per cent. off list, with long nipples at 50 per cent. Sales show very little change and scarcely any improvement is noted yet. The new quotations are the following:

Cast iron fittings	15%
Plugs, solid	25%
Do., cast	10%
Do., countersunk	Net list
Bushings	25%
Unions, 1/4 in. to 2 in.	35%
Do., 1/2 in., 2 1/2 in. to 4 in.	30%
Dart-Unions, blk., 1/4 in. to 2 in.	20%
Do., 1/2 in., 2 1/2 in. to 4 in.	8%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4 1/2" and larger	30%
Long, 4" and under	50%
Do., 4 1/2" and larger	40%
Running thread, 4" and under	20%
Do., 4 1/2" and larger	
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4 1/2" and larger	Net

MALLEABLE FITTINGS

Class A	0 60	0 75
Class B	0 25	0 35
Class C	0 16	0 25

Soil Pipe Unchanged

Toronto. Business continues to be relatively quiet in this line, and this next month should register an improvement. Stocks are reported to be ample, for normal demands. The quotations which are unchanged are as follows:

SOIL PIPE (medium and extra heavy)—

2 and 3 inch, 10%.
4 inch, 20%.
5 and 6 inch, 15%.
8 inch, add 5%.
FITTINGS—
2 to 6 inch fittings, 40%.
8 inch fittings, plus 5%.

Bar Iron Slightly Lower

Toronto.

The base price on bar iron and steel has been revised since the last report and is 75 cents per cwt. lower, being now quoted at \$4.50. There is very little change in sales and buying has been withheld largely until business conditions improve. Stocks as a result are smaller than usual, and a revival of activity should create a good demand. Declines in quotations are reported on pig iron from Pittsburg markets and present production is at the rate of 50 per cent. of productive capacity. The following are quotations here:

IRON AND STEEL	
Common bar steel, 3-16 in. and lighter ...	\$ 4 50
Do., 1/4 in. and heavier	4 00
Common bar iron, 3-16 in. and lighter ...	4 50
Do., 1/4 in. and heavier	4 00
Angle base	4 50
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 00
Spring steel	12 75
Mining drill steel	28 00
Crucible cast sheet steel	
Sheet cast steel	35 00
Sleighshoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Wares are Unchanged

Toronto.

There is no change to record in ware prices. Sales continue to be moderately light, but the approach of spring and a renewal of building operations are being looked forward to, and it is believed that an improvement will shortly be manifested. Stocks are in fair shape and the following are the quotations:

Bath tubs, 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	\$16 25
Do., do., 5 1/2 ft., net	17 50
Lavatories—	
18x24" Apron F154 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$7 60 \$7 70 \$7 80
20 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Closets are Quiet

Toronto.

There is little improvement shown in the demand for these goods and the quiet season has not entirely passed. Wholesalers' stocks are in fair shape for ordinary demands and quotations remain as follows:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
17x10" Apron F139 or P4045	15 30
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50

Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

Lead Traps and Bends Decline

Toronto.

A lower price has been made on lead traps and bends, which are now quoted at 10 per cent. off list. Former quotations were net list. Solder is inclined to be weaker, but shows no quotable change. At the present time there is a slightly firmer tone in the outside primary lead markets, though the demand is not showing much increase. Enquiries are reported to be more numerous, however. The following are quotations here:

Lead pipe, list, per lb.	0 12 1/2
Lead waste pipe, list, per lb.	0 13 1/2
Do., over 8 in., list, per lb.	0 14 1/2
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09 1/2
Cut sheets 1/2 to 3/4 lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 36
Do., 40-60	0 26 1/2 0 28
Do., 50-50	0 29 0 31
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., guaranteed, lb.	0 28
Do., wiping, lb.	0 22 1/4
Zinc sheets, per lb.	0 16
Calking lead	0 08 0 09

Eavestrough Unchanged

Toronto.

Business in eavetrough and conductor pipe remains quiet and little change has been made in the past two weeks. Wholesalers report that stocks are ample and deliveries of material are made promptly now. Prices show no changes since the early part of the year, and are as follows:

TROUGH (Eave)

O. G., Square Bead and half round.	Size in girth:	Per 100 ft.	Per 100 ft.
8-in.	\$15 90	15-in.	\$28 80
10-in.	17 70	18-in.	36 50
12-in.	21 20		
	Less 50/10 per cent.		

PIPE (Conductor)

Plain, round or corrugated.	
Per 100 ft. in 10 ft. lengths.	
2 in., in 10-ft. lengths, list	\$18 40
3 in., in 10-ft. lengths, list	22 30
4 in., in 10-ft. lengths, list	29 60
5 in., in 10-ft. lengths, list	40 00
6 in., in 10-ft. lengths, list	49 00
	Less 50/10%.

Conductor Elbows Quiet

Toronto.

With pipe and trough the demand for conductor elbows is small at the present time and stocks are ample for all needs. Prices are unchanged and the following are the current quotations:

ROUND CORRUGATED OR CRIMPED ELBOWS	
2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
	Less 50%.

Range Boilers Steady

Toronto.

Prices on range boilers remain steady at the declines made early in the present year, and there is no indication of further changes. While business is lighter than usual there is a better tone evident. An electric welded boiler is being quoted at \$11.75 in the 30-gallon size, and a 40-gallon size at \$16.50. The

quotations on riveted boilers are the following:

RANGE BOILERS—		
	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Radiators are Unchanged

Toronto.

There has been no change in quotations on radiators and hot water boilers, and discounts remain 40 per cent. off list for hot water, and 41 per cent. for steam. Although there is little increase of activity yet, prospects appear more hopeful. The following are present quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 40% for hot water and 41% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 39%.

Boiler Tubes Easier

Toronto.

A little improvement is shown in the demand for these, but sales are not as heavy as they should be at this season. Stocks are reported to be sufficient for all reasonable demands. Quotations show slight reductions in some sizes, and are as follows:

BOILER TUBES—		
	Seamless	Lapweld
1 inch	\$28 00	\$.....
1 1/4 inch	30 00	.....
1 1/2 inch	32 00	.....
1 3/4 inch	33 00	.....
2 inch	35 00	28 00
2 1/4 inch	38 00	32 00
2 1/2 inch	46 00	36 00
3 inch	54 00	45 75
3 1/2 inch	70 00	46 00
4 inch	92 00	60 00

Compression Work Unchanged

Toronto.

Prices are holding at recent changes on compression work. Very little improvement in the demand is noted yet. Stocks are in fair shape for the opening of the spring trade. The following are the current quotations:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	25%
Flatway stop and waste cocks, standard	34%
Roundway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	10%
J.M.T. C.	15%
Gate or straightway	7/10%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable discs	38%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Sheet Prices Maintained

Toronto.

There is little change shown in either prices or sales of black and galvanized sheets, and plates are also unchanged. The future price tendency is uncertain, many wholesalers claiming that present quotations show little margin of profit. On the U.S. markets the independent mills are quoting \$5.25 for 28 gauge galvanized sheets, as compared with \$5.70 at year ago, but premiums were

the rule at that time. To-day's prices are \$2.00 below the average price of last year. The English market is very slow and prices have been declining there lately. The following are current quotations here:

BLACK SHEETS

14 gauge	6 30	7 70
16 gauge	6 40	7 75
18-20 gauge	6 75	7 80
22-24 gauge	6 80	7 85
26 gauge	6 85	7 90
28 gauge	7 00	8 00

PLATES

10 gauge plate	6 20
12 gauge	6 25
14 gauge	6 30
16 gauge	6 40

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

An extra 10c per 100 lbs. is also charged on sheets 36 inches wide.

GALVANIZED SHEETS

Premier and Apollo

10% oz.	9 40	10 30
U.S. 28 gauge	9 00	10 00
U.S. 26 gauge	8 70	9 75
22 and 24 gauge	8 55	9 50
18 and 20 gauge	8 40	9 35
16 gauge	8 25	9 20
12 and 14 gauge	8 20	9 15

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10% oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Light Corrugated Sheets Down

Toronto.

A reduction of approximately 10 per cent. has been made in the price of 26 and 28 gauge corrugated galvanized sheets, which are now quoted at \$10.25 and \$9.50 per cwt., less 7 1/2 per cent. The other gauges remain unchanged. Business is comparatively light on these lines at the present time, but should improve from now on. The new quotations are the following:

CORRUGATED SHEETS—		
	Per 100	Sq. Ft.
No. 28 gauge	9 50	
No. 26 gauge	10 25	
No. 24 gauge	16 00	
No. 22 gauge	19 00	
No. 20 gauge	22 00	
No. 18 gauge	28 00	
Less 7 1/2%.		
Lighter than 24 gauge and wider than 27 in.		
75c per square extra.		

Plumbers' Oakum Lower

Toronto.

Revisions have been made again in oakum prices and plumbers' oakum is lower at \$8.25 per 100 lbs., less 10 per cent., in bales. For small quantities the quotations are from 10 to 11 cents per pound.

Cotton Waste Easier

Toronto.

Although prices are nominally unchanged on cotton waste the tendency appears easier, and other cotton products are showing further declines. There is said to be a fair amount of business for the season. Quotations are as under:

* WASTE		
Cream, Polishing	0 21 3/4	
WHITE		
XXX	0 20 1/2	
XX	0 18 1/2	
X	0 17 1/2	
XX, grad.	0 17 1/2	

XLCR	0 15
X Empire	0 16
X Press	0 13 1/2
XC	0 16 1/2

COLORED

No. 1	0 14 3/4
No. 7	0 13 3/4
No. 1A	0 12 3/4
No. 1B	0 11 3/4
Fancy	0 10
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09
Above lines subject to trade discount for quantities.	

Brass and Copper Sheets Lower

Toronto.

With the declines in the primary markets on copper there is a lowering of prices in the manufactured metal. Copper rods, sheets and tubes are lower, and the same is applicable to brass. Following are the base prices on these lines:

BRASS—	
Sheets, base, per lb.	\$0 29
Rods, base, per pound	0 26
Tubing, base, per lb.	0 36
COPPER—	
Rods, base, per pound	0 34
Soft sheets, plain, 16-oz. and heavier, lb.	0 34
Do., plain tinned	0 40
Do., polished and tinned	0 45
Tubing	0 39

White Lead in Oil

Toronto.

No further changes have been made in white lead in oil prices, and in less than ton lots it is still quoted at \$15.30 per cwt. Dry red lead is quoted at \$15 per cwt. on 100-lb. casks. Linseed oil in single barrels is 95 cents per gallon, and turpentine \$1.00 per gallon.

Scrap Metals Still Quiet

Toronto.

A continued quiet and dull tone pervades the scrap metal market, and prices are practically unchanged. The weakness of virgin copper, the slump in tin, and the reductions in lead prices have combined to make the non-ferrous scrap metals very uncertain in values. The tendency for iron and steel scrap is also lower. The following are nominal quotations for fair-sized quantities:

WASTE MATERIAL

No. 2 busheling	13 00
Stove plate, per ton	19 00
Scrap pipe	8 00
Yellow brass	6 50
Red brass	10 00
No. 1 machinery cast	24 00
Heavy melting steel	15 00
Heavy copper	10 50
Light copper	8 00
Scrap zinc	3 75
Light brass	4 00
R.Rd. wrought iron, No. 1, per gr. ton	13 50
Heavy lead pipe	3 75
Old rubbers, boots and shoes	3 00
Overshoes, lumbermen's rub. boots	2 00
Bicycle tires	0 75
Automobile tires	0 50
Tea lead	1 75

Ingots Quiet and Dull

Toronto.

Ingots remain quiet and dull and scarcely any improvement is recorded. Even for a quiet season the market is said to be remarkably dull. Tin is the chief feature, with a decline of 2 cents. Other metals remain unchanged locally, although showing a somewhat firmer tone on U. S. and English markets. All



MUELLER **1½ inch Waste** **and Overflow** **A-2435**

This **MUELLER** connection, because of several late improvements in construction, can be installed much quicker than any other make. The waste elbow and overflow are cast brass, overflow strainer is cast and the waste strainer is of heavy wrought brass.

Toronto By-law Requires **1½ inch Waterway**

Toronto City By-law demands that 1½ in. waste and overflow be used, as being perfect in construction, capable of the best service and entirely satisfactory in every way.

Correct designs, the right raw materials and a fine precision in workmanship, make **MUELLER Brass Goods** stand every test and give dependable and enduring service.

Write for catalogue and prices. Mail orders given immediate attention.

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SARNIA, ONT.

Water, Plumbing and Gas
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American Factory at Decatur, Ill., U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

non-ferrous metals are regarded as exceptionally low in price at the present time and copper and lead are practically back to pre-war prices, and are said to be costing more to produce than present selling prices.

TIN.—This is the one metal showing a decline since last report. Prices have declined on London markets, and the weakness of sterling has also tended to bring down prices on this side of the Atlantic. On New York markets it reached 28 cents, the lowest figure it has been sold at for twelve years. Local markets are listless, with quotations lower at 38 cents.

COPPER.—Drifting and showing little life is the report on this. The situation in Europe is expected to mean the withdrawal of Germany as a buyer of copper in U. S. markets, and as they were buying large quantities of copper from the States, it may affect prices there. Further shading is reported in outside markets. Prices here are held unchanged at 19 cents for casting copper.

LEAD.—A little firmer tone is reported in lead markets. Quotations are £18 at London against £16 10s, the lowest point of last month. Four dollars continues to be quoted at New York and St. Louis. Prices here are down to \$6.

SPELTER.—This at present is extremely dull. Despite the lowness of price there is a slightly firmer tone to the market. Prices are steady at \$7.

ANTIMONY.—Consumers of this metal showed little interest lately and prices are unaltered at 8 to 9 cents.

ALUMINUM.—There has been no material change in this and it continues dull, though with an improvement in the auto-motive industry dealers expect an increase of interest. Quotations remain unchanged at 35 to 37 cents.

WROUGHT IRON AND STEEL PIPE

Continued from page 18

any building. Experience has shown that cast iron is apparently unaffected by the deteriorating influences within house drainage."

In conclusion let me state our situation in Winnipeg.

In revising our Plumbing and Drainage By-law a year ago we eliminated the use of steel pipe and required all screw pipe to be genuine wrought iron and this provision will go into force on the 1st June next, but that has involved us in almost a worse predicament, as we are at a loss to know how we are definitely going to distinguish between genuine wrought iron and steel pipe. I feel that the only sure course to steer is to eliminate screw pipe as much as possible, and that is our intention.

In this country we are not likely to follow the example of our cousins to the South, in erecting extremely high buildings, indeed the building by-laws of Winnipeg limit the height of buildings to 215 feet and not more than twelve stories high, therefore I consider there

To Investigate Broken Water Main

Administrative Commission in Montreal Asked to Furnish Full Information

AN echo of the bursting of a water main on St. Urbain Street, Montreal, when two children were drowned, was heard in a complaint which was laid on the table at a recent meeting of the city council, pending the securing of the following information from the administrative commission:

1. By whom were the water pipes that burst on St. Urbain Street, Sunday, February 20, 1921, supplied?

2. When did the company that supplied the said water pipes commence business?

3. Was any guarantee given at the time of the purchase of the water pipes?

4. Did the persons who supplied these pipes establish that they had sold similar pipes before to any other municipality in Canada or in the United States?

5. Was there any report made against the buying of these pipes, and, if so, by whom?

6. What other firms tendered for these water pipes at the time the contract was given?

7. What was the cause of the breaking of the water main on St. Urbain Street at the time of the accident?

8. On how many other occasions have these water pipes and mains burst since they have been laid?

9. What claims for damages, if any, have been filed against the city of Montreal as a result of the bursting of these water mains since the time they have been installed?

10. If these water pipes burst before, was the cause of the same ascertained and was a report of the same made, and, if so, what was the report?

11. What measures were taken by the municipal authorities to prevent further accidents of a similar nature?

12. Why did the administrative commission state through the press that all similar water pipes installed in the city would have to be replaced?

is no advantage in using screw pipe, and many advantages in using cast iron pipe. In the Eaton building at present under construction, and which is nine stories, in height, all soil and rain water stacks have been constructed with cast iron piping.

I believe I have clearly demonstrated that not only are there many advantages to be gained in using cast iron in plumbing and drainage work, but that there is also much more satisfaction to be derived from the knowledge that the job will last as long as the building it serves.

If I might be permitted to say a word to the manufacturers of cast iron pipe it would be this. You have built up a reputation which places cast iron pipe in an unassailable position for use in plumbing and drainage work, and it should be your endeavor to retain that position by using only the best of raw material for your products.

BIG SUMS SPENT ON WATER PURIFICATION

Dr. J. W. S. McCullough of Toronto, Ontario Provincial Health Officer, in the course of an address delivered a few days ago before the Canadian section of the American Waterworks Association, stated that a sum exceeding \$7,000,000 had been expended during the past year by municipalities in Ontario in the purification of water supply. Linking chlorination with filtration is the plan recommended to "make assurance doubly sure." He stated that in the past decade, as a result of the purification of the water systems in Ontario, typhoid fever has been reduced from 31.5 to 5.2 per thousand, which figures, if accurate, amply

justify the outlay of a huge sum of money on water purification. Every municipality installing a water filtration plant must now, he says, submit the plans to the Provincial Board of Health before the work is undertaken.

EXPECT BIGGEST BUILDING YEAR IN HISTORY

City Architect Price of Toronto states to Sanitary Engineer that it is now more than likely that the present year will prove to be one of the biggest, if not the biggest, building year in the history of the city. It is estimated conservatively that building to the value of \$35,000,000 is in prospect in the city of Toronto. Reports from other parts of Canada are said to provide an equally rosy outlook. In Winnipeg, for example, the latest estimate is that \$14,000,000 worth of building, the largest since pre-war days, is contemplated.

Frank A. Miller, Kingsville, Ont., wants prices at once on steam heating system in connection with business block he has purchased.

* * *

William Rawson, Kingsville, Ont., wants prices at once on heating, plumbing and electrical work in connection with new \$4,500 residence.

* * *

The council at Wheatley, Ont., will take up with the Provincial Health authorities shortly the question of installing a waterworks system.

* * *

Robert Yates, of Wardsville, Ont., wants prices on heating and plumbing in connection with new store to cost \$10,000.

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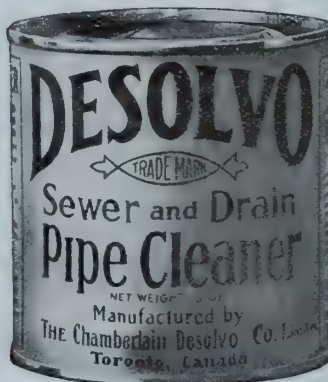
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Then pass it on to your
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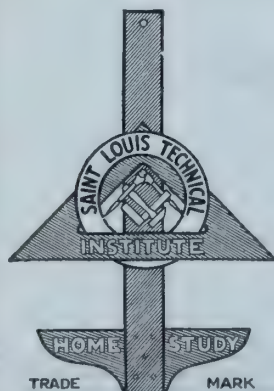
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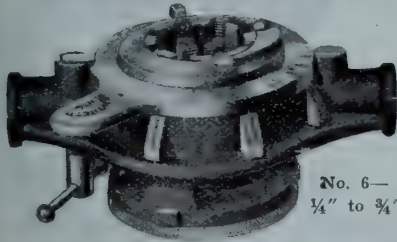
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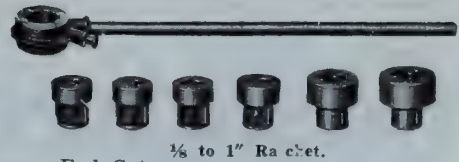
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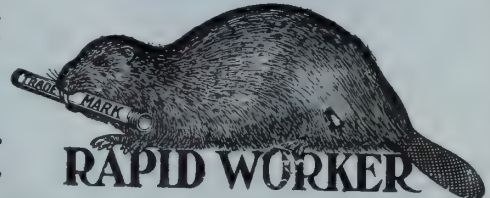
Toronto



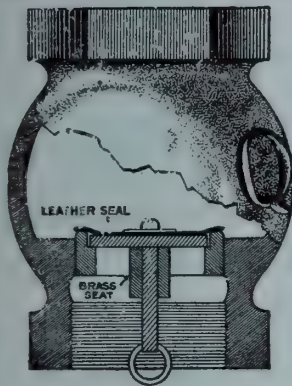
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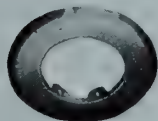
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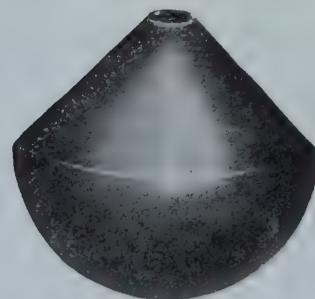


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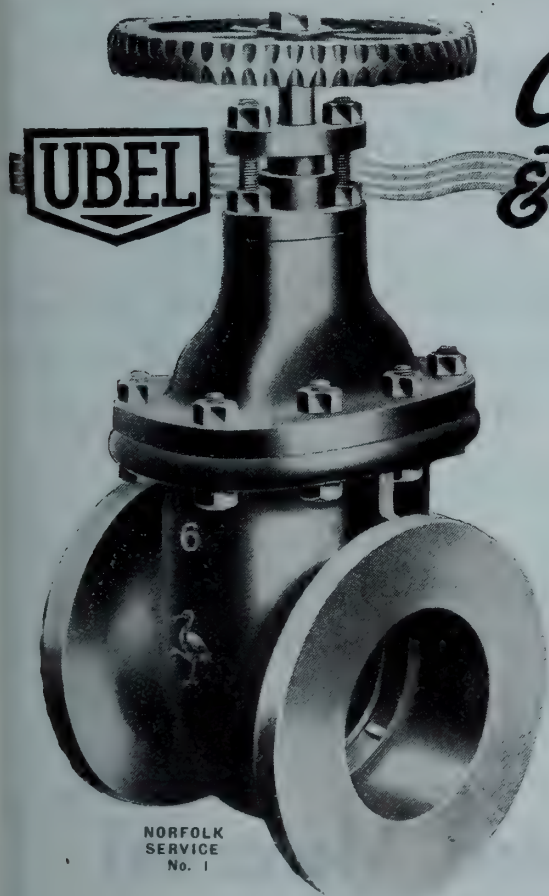
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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
The Westco Pumps Limited, Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.



Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO

INDEX TO ADVERTISERS

Allison, K. B.	4
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Bastian Morley, Ltd.	43
Beaton & Cadwell	6
Borden Can. Co., Ltd.	39
Canadian Veneering Co., Limited.	6
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products, Ltd.	44
Chamberlain Desolvo Co.	38
Cunningham & Co., W. H.	41
Dominion Sheet Metal Corp., Ltd.	1
Empire Manufacturing Co.	Outside front cover
Fittings, Ltd.	44
Galt Brass Co.	Back cover
Greenfield Tap & Die Corp.	3
Hause Mfg. Co., Chas. F.	44
Hoyt Metal Co.	38
International Malleable Iron Co.	37
Jardine & Co., A. B.	7
Kerr Eng. Co., Ltd.	4
Lord & Burnham, Ltd.	12
Marks & Co.	44
McDougall & Co., R.	39
McIntyre & Taylor, Ltd.	39
Morrison Brass Mfg. Co., Ltd., Jas.	9
Montreal General Tool Co., Limited.	9
Mueller Mfg. Co.	35
Ontario Metal Products Co., Limited.	39
Port Hope Sanitary Mfg. Co.	22-23
Spencer Heater Co. of Canada, Ltd.	7
St. Louis Technical Institute.	38
Standard Sanitary Mfg. Co.	5
Steel Trough Machine Co.	44
United Brassfounders & Engineers, Ltd.	41
Warden-King, Limited	42
Wesco Pumps, Limited.	8
Williams & Co., J. H.	6
Williamson Tool Corporation of Can., Ltd.	8
Wolverine, Limited	8



Send for these folders, to-day!

Clip the coupon below and let us send you these two beautiful illustrated folders. They cost you nothing but will give you a world of information—a big help in solving your heater problems.

THE
Royal
automatic

The folder on the left tells how 25 to 40 gallons of steaming hot water can be automatically maintained in the home, ready for instant delivery at all connected faucets, by a tiny gas flame no bigger than the blaze of a match. No fuss. No muss. No complications. A simple and profitable installation that any plumber can easily understand.

The other folder describes our Marvel Non-Automatic, a combined range boiler and gas water heater that takes the place of the old "sore thumb" or side-arm contraption. The Marvel is the most economical non-automatic gas water heater made and gives absolute satisfaction.

Know these facts. They are important in your business. Clip the coupon now.

BASTIAN-MORLEY LIMITED
Hanson St. and Hillingdon Ave.
TORONTO, CANADA
Makers of Gas Water Heaters Exclusively



Send This Coupon !

Bastian-Morley Limited, Toronto.

Gentlemen:—Please send me illustrated folder describing your "Royal" Automatic and "Marvel" Non-Automatic Gas Water Heaters. Also send price list and give name of nearest jobber.

Name

Address

Town Province

(Tear Out This Coupon—Send It To-day)

WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{8}$ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

Fittings Limited



Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers

Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.

Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London



No. 1 "TWEED"

Sanitary Closet
with mahogany
finished seat
and lid with
nickel-plated
hinges.

The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

We also make an attractive line of "Tweed" Baths and other home conveniences.

LOUIS A. PAYETTE

304 University St., Montreal
Quebec and Eastern Representative

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

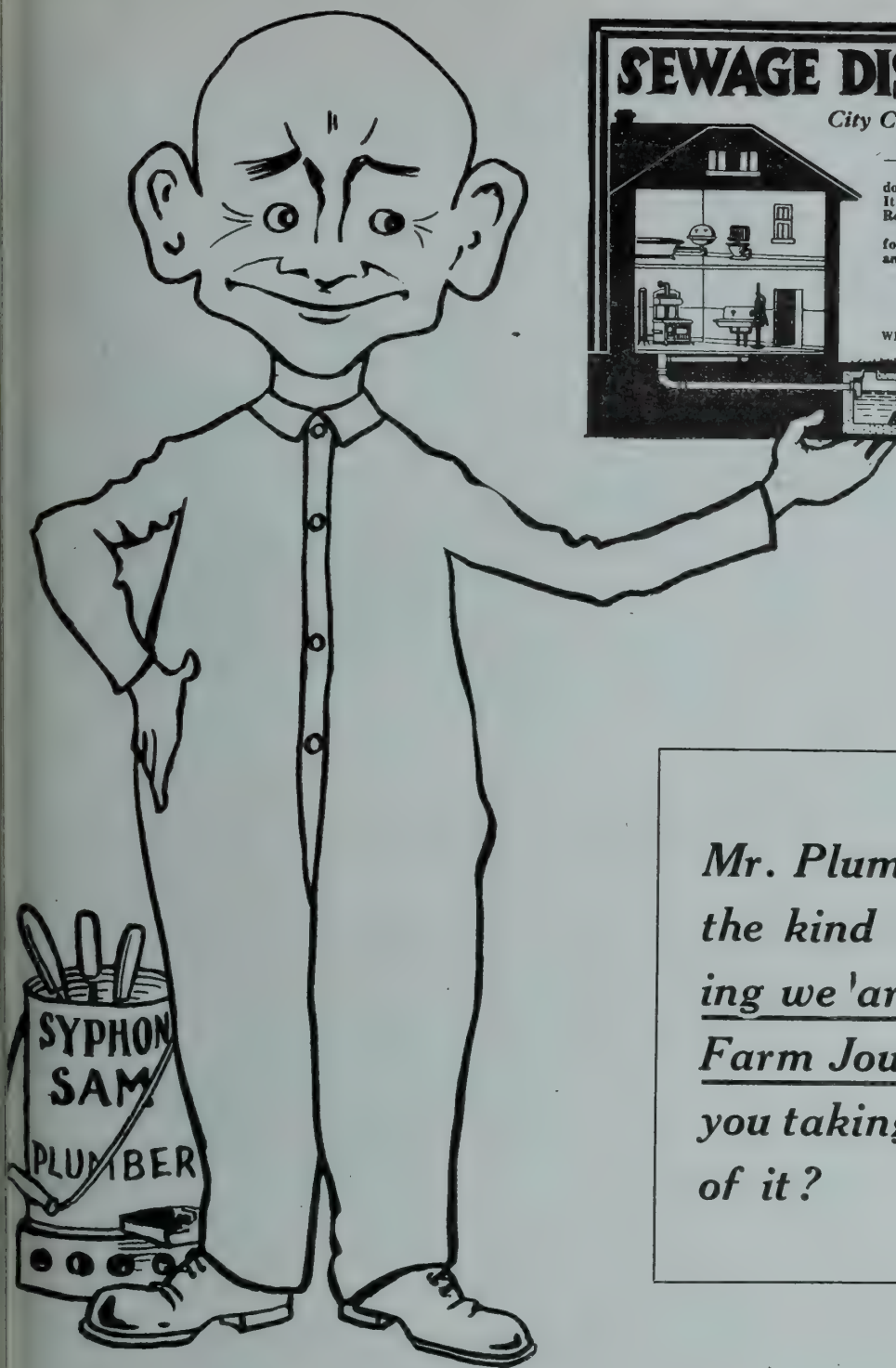
Write for price lists and literature.

The STEEL TROUGH & MACHINE CO.
TWEED, ONT., CANADA Limited

Practically all good buyers of Plumbing and Heating supplies in Canada are readers of Sanitary Engineer, Plumber and Steamfitter of Canada.

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

The Advertiser would like to know where you saw his advertisement---tell him.



SEWAGE DISPOSAL SYSTEM

City Comfort in the Country

Our Sewage Disposal System is more than a comfort—it is a necessity.

Our Septic Tank with Anthes Syphon is automatic, does not act as a cesspool or gather objectionable odors. It is a safe, sanitary sewage disposal for country homes. Requires no attention.

It can be and should be installed in your home. Write for our descriptive circular and blue prints—sent free anywhere.

ANTHES FOUNDRY LTD.
Manufacturers of Soil Pipes and Fittings,
Tank Heaters, Feed Cookers, Etc.

WINNIPEG TORONTO

Mr. Plumber: This is the kind of advertising we 'are putting in Farm Journals. Are you taking advantage of it?

Anthes Foundry, Limited

Toronto

Winnipeg

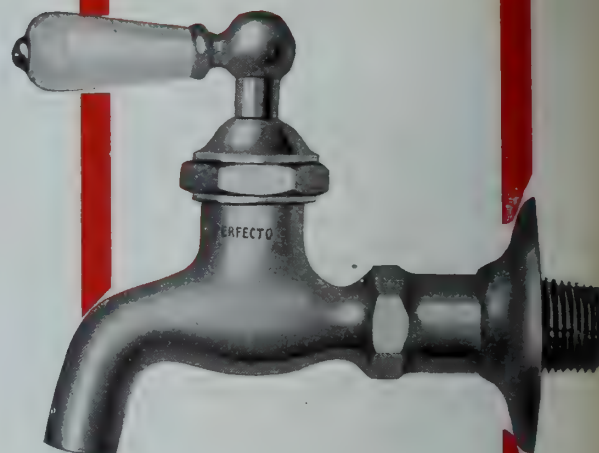
For Particular Jobs — PERFECTO Brass Goods

WHEN the customer insists on a first-class job you can rely on PerfectO Brass Goods to satisfy his demands. In brass goods PerfectO means Perfection. Your customers will see at once the solid, serviceable construction and will admire the neat, trim lines of a PerfectO article. Pains-taking care has built service, long-life and satisfaction into PerfectO Brass Goods.

By the standardization of PerfectO parts the makers of PerfectO Brass Goods have attained the highest possible accuracy and are able to produce articles perfect in every detail of construction. This insures easy, smooth working parts and greatly increases the efficiency of the article.

PerfectO Brass Goods are made to uphold the reputation of the man who installs them. It will pay you to make every job a first-class job by installing PerfectO Brass Goods.

GALT BRASS CO., LIMITED
GALT, CANADA



*Made by the
Makers of*

VITRO

NO TROUBLE

TANKS

PERFECTO Brass Goods

Sanitary Engineer

Plumber and Steamfitter of Canada

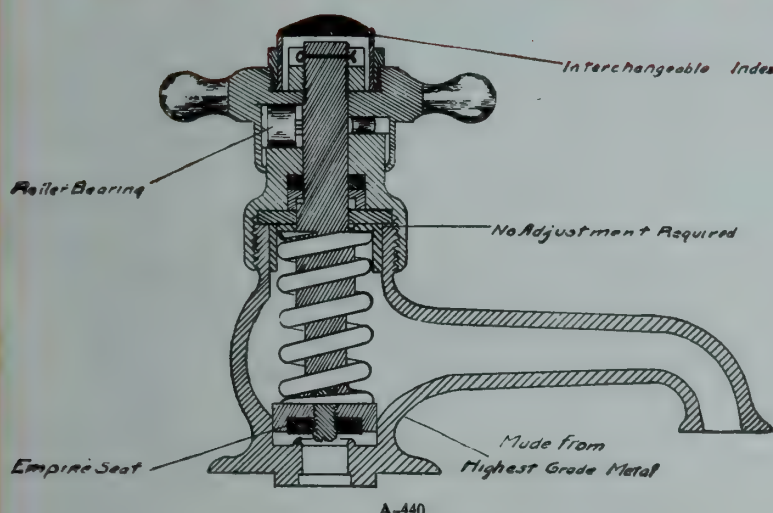
Vol. XV.

PUBLICATION OFFICE, TORONTO, APRIL 1, 1921

No. 7



Products Cover Canada



*"If it's an EMPIRE product
you know it's right"*

THIS EMPIRE self-closing basin cock is a universal favorite on account of its improved design. By reference to the sectional illustration its superior points may be noted and appreciated.

Rollers are made of specially hard nickel alloy and will last a lifetime.

Its use in connection with the hot water side of systems will result in a great saving of hot water and fuel. It cannot rust and will wear much longer than the ordinary basin cock.

We make a complete line of sanitary fixtures and plumbing supplies. Jobbers everywhere handle EMPIRE products, and your needs will be given prompt attention.

Empire Brass Mfg. Co., Limited
LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:

E. B. Flewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 304

Don't delay in placing
SPRING ORDERS
FOR



GALVANIZED SHEETS

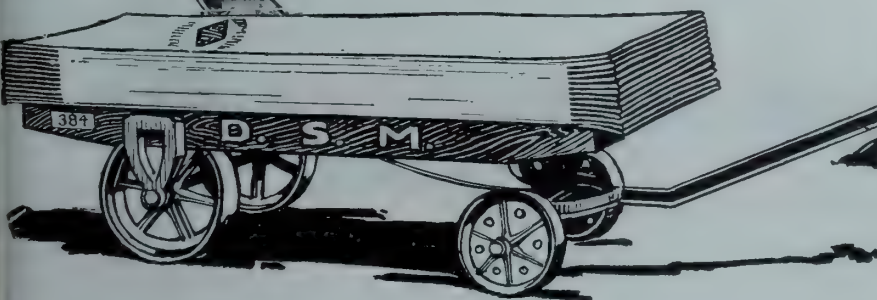
By ordering now you are sure of the stock when needed.

The price will be right.

Every order helps to start the wheels of trade.

Tell your jobber to book you now.

TINKER TOM.



Seeing is Believing

A Little
"Straight Talk"
to the Canadian
Plumbing Trade

Ten minutes ago a well-to-do Toronto business man sat down at my desk to discuss a business deal. He glanced up at a display rack showing a mahogany, oak and blanco white seat hanging on the office wall and immediately admired the white seat, asking the price. We told him we did not sell the consumer; he asked that we add plumber's profit and ship one to his home. He paid cash for the seat and stated that he had been looking for this fixture for some time.

The object lesson we want to drive home is your opportunity to show this product to the hundreds of thousands of house owners, who never drift into our office, and we will gladly pay to the first plumber in Toronto the 25 per cent. we added in this particular transaction who will go out and get convinced by selling one of these seats through showing something up-to-date to the numberless house owners, awaiting his aggression.

Yours for Efficiency and Service,

CANADIAN BRASS COMPANY, LIMITED
GALT TORONTO

EVENTUALLY! WHY NOT NOW?

The Pilot Superior Pipeless Furnace

Easily Installed.

Abundance of heat.

Saving of 25% in your Fuel.

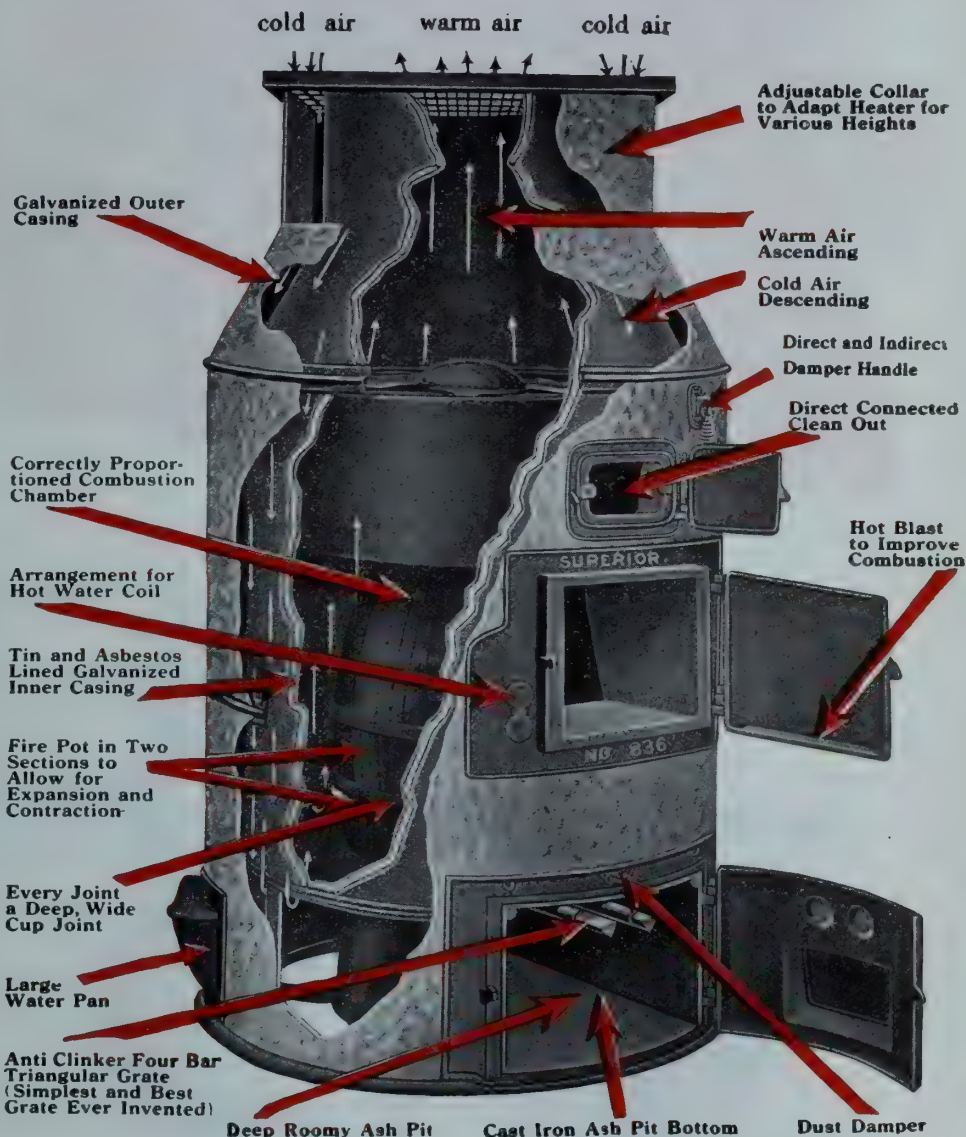
More Sanitary Heating.

The most up-to-date and satisfactory heating system in existence to-day.

Very profitable line to the Dealer.

Write to-day and secure agency.

We will assist you in making sales.



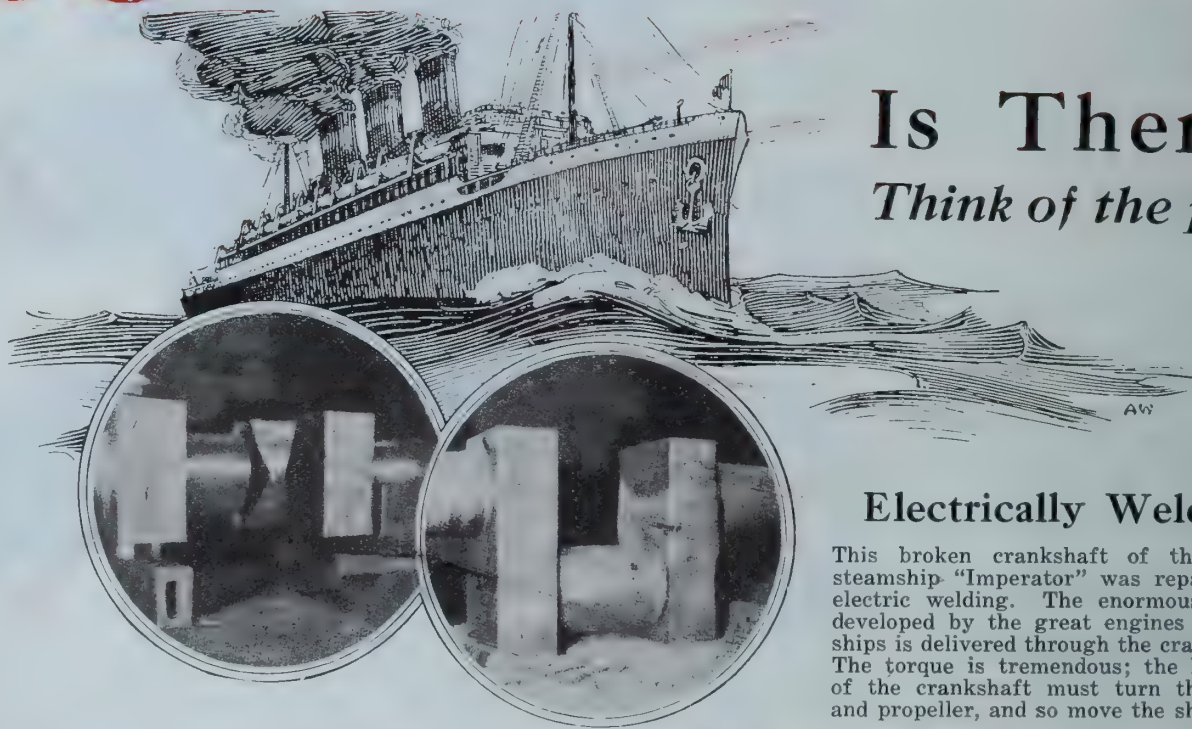
The HALLZRYD FOUNDRY COMPANY, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

HESPELER, ONTARIO

WINNIPEG BRANCH : P. O. BOX 687, WINNIPEG, MAN.

Electric Weld Range



Is There a
Think of the power

Electrically Welded

This broken crankshaft of the great steamship "Imperator" was repaired by electric welding. The enormous power developed by the great engines of such ships is delivered through the crankshaft. The torque is tremendous; the leverage of the crankshaft must turn the shaft and propeller, and so move the ship.

Canadian John Wood
Toronto

The Quality

Boiler

Greater Proof of Efficiency?

Transmitted by a Ship's Crankshaft!

THESE strictly modern range boilers are made by the same process that is reliable and efficient enough to mend a ship's crankshaft. Electric Weld Range Boilers are the latest milestone along the highway of progress; they are a step ahead, just as kerosene lamps were, then gas, and now the incandescent light.

Engineers to-day know the perfection of the electrically welded joint; that is why electric welding is supplanting the old-fashioned methods in ship-building, locomotive building, for mending large gear wheels, broken castings in high-pressure pump bodies, and many similar things for which the strongest joint obtainable is wanted. So, you see, Electric Welding is in full keeping with the other superior, modern features of Electric Weld, The Quality Range Boiler.

Made in Canada

Manufacturing Co., Limited

Ontario

Reliable Sanitary

Salable Goods with a Reputation



A-1900
Quatern
Basin
Cock

The outstanding essential in a modern home is a modern bathroom. Paramount essentials in a modern bathroom are modern, pleasing, durable, pressure-resisting Bath Cocks, Basin Cocks, and Ball Cocks.

Our High-Grade Quatern Goods for these purposes are a standardized, uniform line, with interchangeable and replaceable working parts.

They are distinct in design, with high nickel finish, adding quality and refinement to never-failing service.

Install, with the modern white enamel sink, the modern, stoutly-designed, highly-finished, quick-opening Quatern Faucet. Pull the lever towards you one-quarter turn for full opening. To close, throw the lever from you one-quarter turn, the pressure helps you; these close with the pressure.



A-1000
Sink Faucet



Bath Cock
A-3200

These Quaterns are the last word in Faucets; they are the demonstrators, speak for themselves, and bring the plumber another job from the "Folks next door" before he leaves the neighborhood.

Equipment for Service

Classic Quatern Standard Mixing Faucet with swinging spout for kitchen sinks, nickel-plated, with china index handles.

The spout has a radius of 6 inches and can be pushed back out of the way.



A-100
Mixing Faucet



Allingham
Pop-Up Waste
A-2300



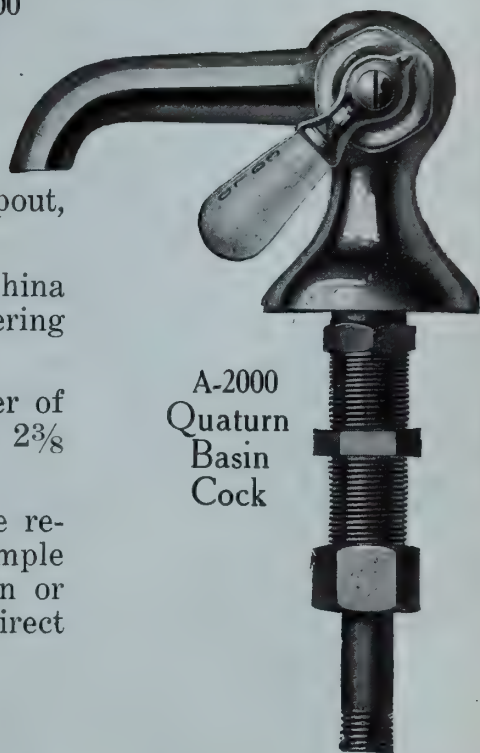
Quatern Double
Pantry Cock
A-1700

Quatern Double Pantry Cock, No. A-1700, with gooseneck spout, China Index Handles, is nickel-plated.

Allingham Pop-up Waste (patented), Nickel-plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

Diameter of flange under waste knob $1\frac{3}{4}$ inches. Diameter of flange inside hole $2\frac{1}{8}$ inches. Diameter of flange bowl $2\frac{3}{8}$ inches. Outside diameter of outlet tube $1\frac{1}{4}$ inches.

The Allingham Waste is sanitary. The waste plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.



A-2000
Quatern
Basin
Cock

Write for Interesting Literature

The Wallaceburg Brass & Iron Manufacturing Co., Limited
WALLACEBURG, ONT.

TORONTO

10 Wellington St. E. Phone Main 2355
Mr. L. N. Vanstone

WINNIPEG

Galt Building Garry 3389
Moncrieff & Endress, Ltd.

MONTREAL

358 Beaver Hall Sq. Phone Main 7531
J. R. Devereux & Co.

Date Apr. 23rd, 1920

Replacing Apr. 14 1920
Elbows

	Black	Galvd.
$\frac{1}{8}$ "	\$0.04 $\frac{3}{4}$	\$0.05 $\frac{1}{2}$
$\frac{1}{4}$ x $\frac{1}{8}$ "	.06	.07 $\frac{1}{2}$
$\frac{1}{4}$ "	.03 $\frac{1}{4}$	.04 $\frac{1}{2}$
$\frac{3}{8}$ x $\frac{1}{8}$ "	.10	.11 $\frac{1}{2}$
$\frac{3}{8}$ x $\frac{1}{4}$ "	.05	.06 $\frac{3}{4}$
$\frac{3}{8}$ "	.05 $\frac{1}{2}$	.07
$\frac{1}{2}$ x $\frac{1}{4}$ "	.08	.10 $\frac{1}{2}$
$\frac{1}{2}$ x $\frac{3}{8}$ "	.07 $\frac{1}{2}$	.09 $\frac{3}{4}$
$\frac{1}{2}$ "	.09 $\frac{1}{4}$	.10
$\frac{3}{4}$ x $\frac{3}{8}$ "	.11	.12 $\frac{1}{2}$
$\frac{3}{4}$ x $\frac{1}{2}$ "	.08 $\frac{1}{4}$	.14 $\frac{1}{2}$
$\frac{3}{4}$ "	.16 $\frac{1}{2}$	.12 $\frac{1}{4}$
1 x $\frac{3}{8}$ "	.17 $\frac{1}{2}$	.22
1 x $\frac{1}{2}$ "	.19 $\frac{1}{2}$	.23 $\frac{1}{2}$
1 x $\frac{3}{4}$ "		
1"		
1 $\frac{1}{4}$ x $\frac{3}{4}$ "		
1 $\frac{1}{4}$ x 1"		
1 $\frac{1}{4}$ "		
1 $\frac{1}{2}$ x $\frac{3}{4}$ "		
1 $\frac{1}{2}$ x 1"		
1 $\frac{1}{2}$ x 1 $\frac{1}{4}$ "		
1 $\frac{1}{2}$ "		
2 x 1		
2 x 1 $\frac{1}{4}$ "		
2 x 1 $\frac{1}{2}$ "		
2"		
2 $\frac{1}{2}$ x 2"		
2 $\frac{1}{2}$ "		
3"		
3 $\frac{1}{2}$ "		
4"		

PIPE FITTINGS
Malleable
Net Priced

Ells 45

Class 15
Sheet 3A
Bulletin 5
Black Galvd.
\$0.03 $\frac{1}{4}$ \$0.04 $\frac{1}{2}$

$\frac{1}{4}$ "	.05 $\frac{1}{4}$	.07
$\frac{3}{8}$ "	.06 $\frac{3}{4}$	.09
$\frac{1}{2}$ "	.11 $\frac{1}{2}$	.15 $\frac{1}{2}$
$\frac{3}{4}$ "	.20 $\frac{1}{2}$	.27 $\frac{1}{4}$
1"	.31	.41 $\frac{1}{4}$
1 $\frac{1}{4}$ "	.35 $\frac{3}{4}$	.47 $\frac{1}{2}$
1 $\frac{1}{2}$ "	.63	.84
2"	.69	1.04
2 $\frac{1}{2}$ "	1.02	1.53
3"	1.67	2.50

St. Ells

 $\frac{1}{8}$ "

$\frac{1}{8}$ "	.03 $\frac{1}{4}$	.04 $\frac{1}{2}$
$\frac{1}{4}$ "	.05	.06 $\frac{1}{2}$
$\frac{1}{2}$ "	.09	.12
$\frac{3}{4}$ "	.12 $\frac{1}{2}$	.16 $\frac{3}{4}$
1"	.15	.22 $\frac{1}{2}$
1 $\frac{1}{4}$ "	.24 $\frac{1}{4}$	.36 $\frac{1}{4}$
1 $\frac{1}{2}$ "	.29	.48 $\frac{1}{2}$
2"	.51 $\frac{1}{4}$	.77
2 $\frac{1}{2}$ "	.79 $\frac{1}{2}$	1.20
3"	1.24	1.85
4"	2.60	3.90

ALLPRISER

CUT OF BOOK
FULL SIZE 7X9

Crossovers

$\frac{1}{2}$ "	.2	.40
$\frac{3}{4}$ "	.31 $\frac{1}{2}$	.42
1"		

Range Boiler
Couplings

Old style—1 x $\frac{1}{2}$ "	.36
1 x $\frac{3}{4}$ "	.45
New style—1 x $\frac{1}{2}$ "	.39
1 x $\frac{3}{4}$ "	.48 $\frac{3}{4}$

Plugs

$\frac{1}{8}$ "	.01 $\frac{3}{4}$	.03 $\frac{3}{4}$
$\frac{1}{4}$ "	.01 $\frac{3}{4}$	.03 $\frac{3}{4}$
$\frac{3}{8}$ "	.02	.03 $\frac{3}{4}$
$\frac{1}{2}$ "	.02	.05 $\frac{1}{2}$
$\frac{3}{4}$ "	.02 $\frac{3}{4}$	.07 $\frac{1}{2}$
1"	.03 $\frac{3}{4}$	.09 $\frac{1}{2}$
1 $\frac{1}{4}$ "	.04 $\frac{1}{2}$	.13 $\frac{1}{2}$
1 $\frac{1}{2}$ "	.06 $\frac{3}{4}$	.18
2"	.09 $\frac{1}{4}$	

ACTUAL SIZE OF SHEET

This illustration shows a sample sheet of Allpriser Service. Plumbers will readily see how easily and speedily they can locate a given article connected with the trade.

Put Allpriser on your payroll; you will find it a reliable price clerk who works faithfully in your service, giving you the right price at the right time, the whole year round.

ALLPRISER

The Reliable Price Clerk

Protects Your Buying and Selling Prices

TO make your contracts pay, you must give correct estimates, and safe estimating depends on right pricing. If you sell an article for 7 cents that has cost you 7 cents, you are sure losing money.

You are a busy man and cannot follow the markets as closely as you would like. Allpriser can, and does follow the markets so closely as to keep you supplied with the latest cost of materials.

Proof of Allpriser Efficiency

Many large plumbing concerns and manufacturers of plumbing fixtures take several copies of Allpriser. These concerns know and appreciate the value of Allpriser as a practical insurance on pricing—it saves them money—and if it can save money for them it can surely do it for you. Errors are not made purposely but come unexpectedly, and your next mistake may cost you many dollars.

Allpriser service—the reliable price clerk, through this dependable check on pricing, lowers your “overhead” and increases your bank book.

Allpriser is a worthwhile investment of 7 cents a day that will, in a year's business, save you hundreds of dollars. A postcard will bring convincing literature and sample sheets. Do it now while you think of it.

Kenneth B. Allison

4 Irwin Ave.

Toronto

Allpriser Service consists of a flexible leather bound book 7 by 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

"Standard" PLUMBING FIXTURES

Greater Building Activity in 1921

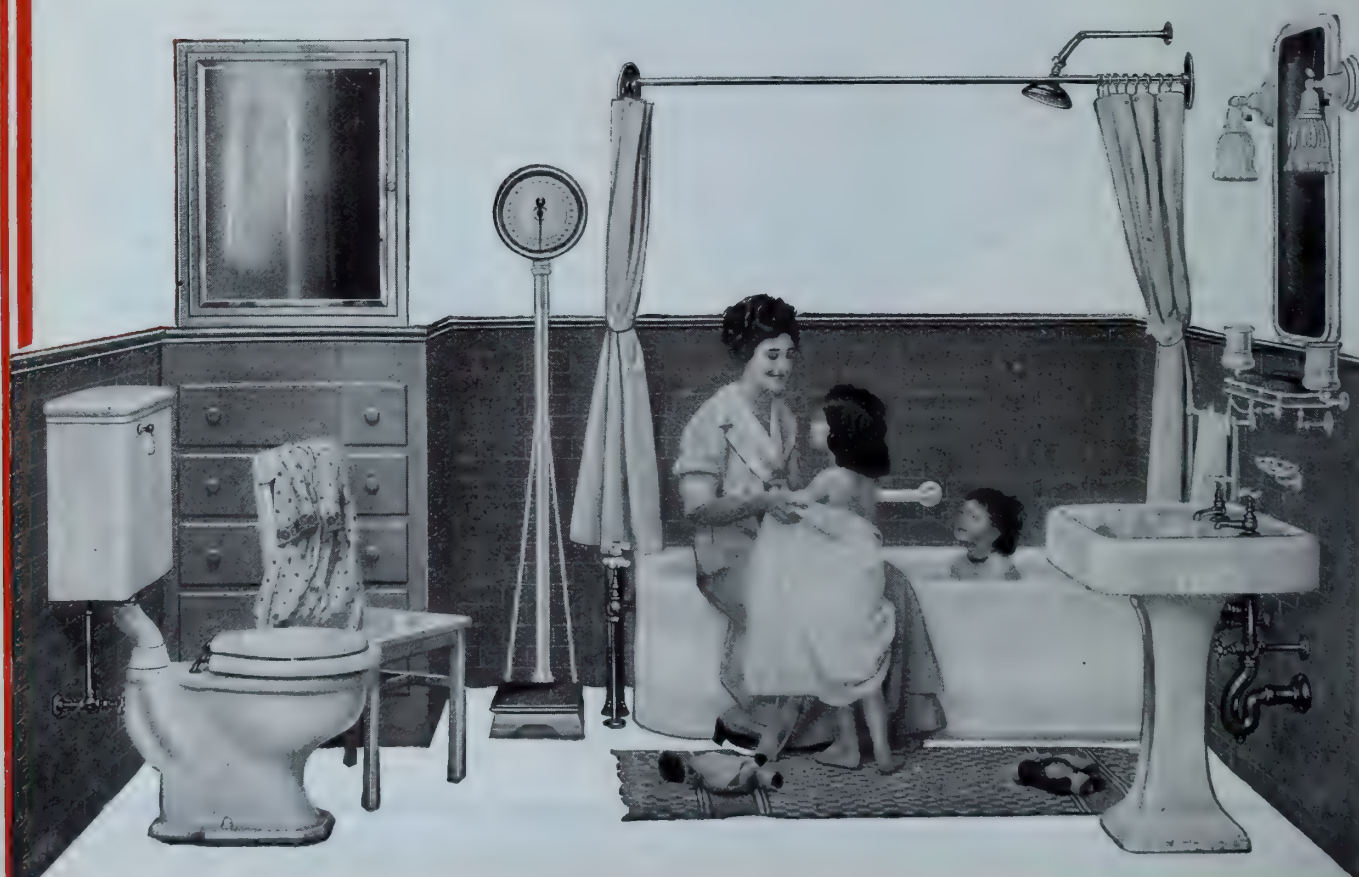
That there is a tremendous shortage of houses, office, and other buildings, needs no demonstration; everybody knows the existing condition of the building industry in Canada.

Housing accommodation is taxed to the limit, companies are clamoring for space in office buildings, business concerns are anxious to increase their premises.

Under the laws of economics, the balance between supply and demand of

buildings must inevitably be restored. The question is, when?

In 1919 permits for building amounting to over \$81,000,000 were issued. This seemed a sure indication of increased building activity in the spring of 1920. Much building was done then, but, because of high cost of labor and material, not as much work was completed as permits had been issued for. The result is that the contemplated but deferred



building for 1920 must be carried forward to swell the already enormous amount of deferred building that must be done sooner or later. In 1920 permits to over \$107,000,000 in value were issued.

1921 seems likely to see the general resumption of building. Materials, which constitute a large percentage of building expense, have decreased in cost. Men have become more productive, which reduces the cost of labor. Deflation has largely been completed. Any further reductions in cost must come, chiefly, from increased production and ingenious economies in management.

Those who wait too long to build will be adversely affected by the heavy demand and possibly rising prices, when a general resumption of building takes place. Anxiety on this score discourages further waiting for prices to drop still lower.

The prospects for building have been slowly accumulating, like a huge snowball rolled up, laboriously, to a hilltop. The snowball is about to commence its downward journey now, gathering speed and size as it descends. 1921 will be a good building year with consequent plentiful sales, installations, and prosperity for the plumbing trade.



Standard Sanitary Mfg. Co.

Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

Toronto Store:
55-59 Richmond Street East

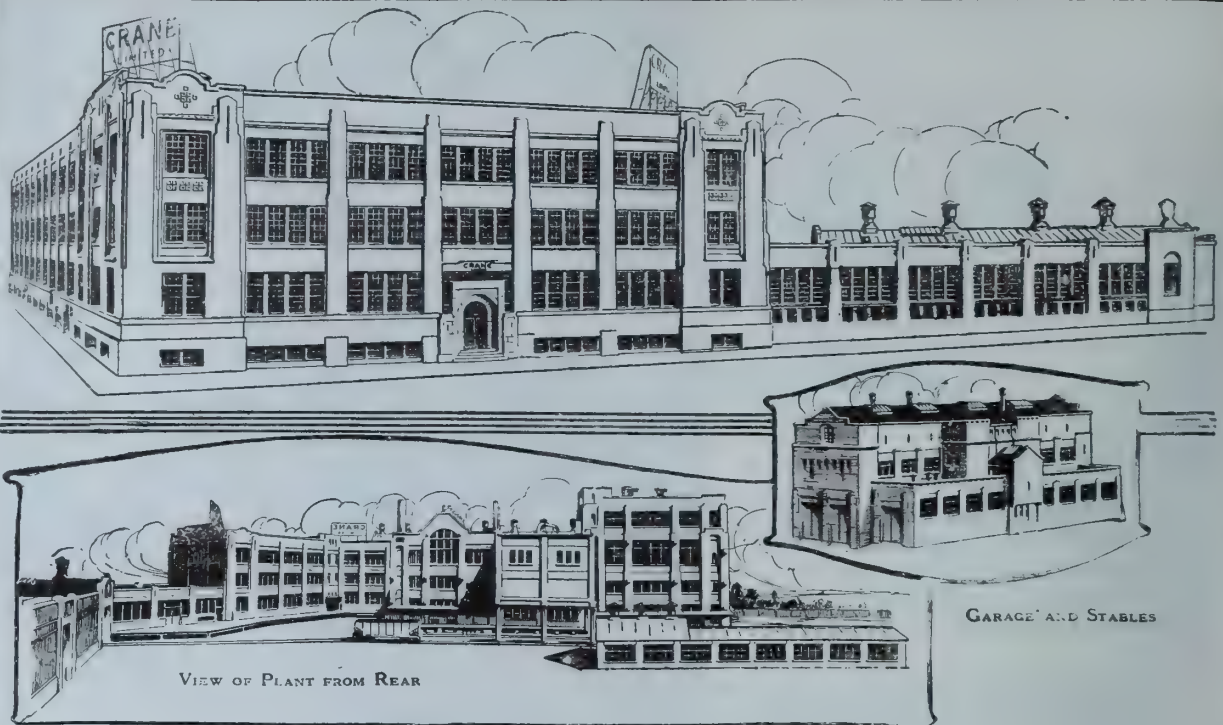
Winnipeg Showrooms:
76 Lombard Street

Montreal:
358 Beaver Hall Square

Calgary:
325 Eighth Avenue West

Hamilton Store:
20-28 Jackson Street West

Vancouver:
860 Cambie Street



CRANE LIMITED

***Manufacturers of Valves, Fittings and Piping Equipment
and Distributors of Pipe, Plumbing and Heating Supplies.***

The establishment of Works at Montreal and Branches (carrying complete stocks) in other principal Cities of Canada enables us to give "CRANE" service and quality throughout the Dominion.

CRANE Quality — Any Purpose or Pressure

Cast Iron Fittings, Screwed and Flanged.	Brass Fittings, Screwed and Flanged.
Malleable Iron Fittings.	Drainage Fittings.
Cast Steel Flanged Fittings.	Valves (brass, iron and steel.)
Forged Steel Screwed Fittings and Flanges.	Power Plant Equipment : Pipe Bends,
Unions and Flange Unions. All iron, all brass, brass to iron.	Flanged and Screwed Pipe.
	Steam Specialties.

CRANE Quality

Plumbing and Heating Materials. The last word in equipment for the Home, Factory, Office, or any other type of building.

CRANE LIMITED

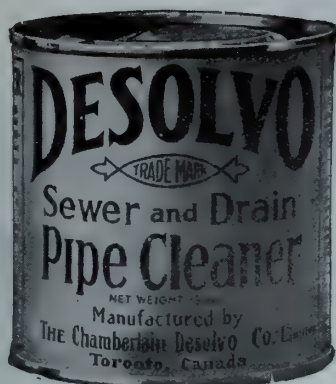
HEAD OFFICE & WORKS
1280 ST PATRICK STREET
MONTREAL

BRANCHES AND WAREHOUSES
HALIFAX, OTTAWA, TORONTO,
WINNIPEG, REGINA, CALGARY,
VANCOUVER.

SALES OFFICES:
QUEBEC, SHERBROOKE, HAMILTON,
VICTORIA.

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HEAD OFFICE AND WAREHOUSE:
LONDON, ENGLAND.

SALES OFFICES:
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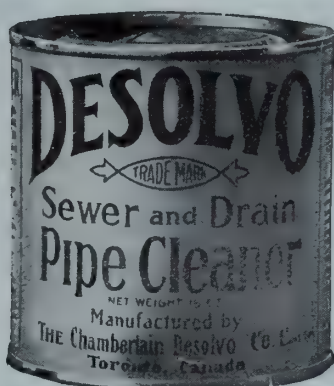


Clears Clogged Pipe



Cleans Closet Bowls

Thaws Frozen Pipe Quickly



Desolvo sells continuously because it makes good and brings re-orders from satisfied customers. This handy cleaner for sewer and drain pipes mixes with cold water and generates heat. It thaws out rain water leaders, frozen drains, and soil pipe stacks with perfect safety to pipes and plumbing fixtures.

Your customers like Desolvo and buy it regularly in quantities because they know it does the work quicker, at lower cost, and with less effort.

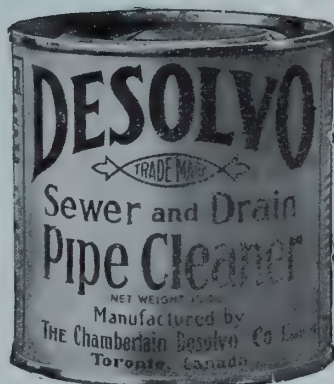
Twenty years' experience in the chemical manufacturing industry has enabled us to embody in Desolvo all the improvements and progress in modern science and methods of manufacture.

Desolvo quickly wins a permanent place in the regard and esteem of your customers.

It "makes good" so promptly and effectively that it holds your old customers, and, through the rapid spread of its good reputation, constantly gains new ones.

It pays to stock Desolvo; it pays to display it well, and it pays in the ever-increasing volume of quick, easy, profitable sales.

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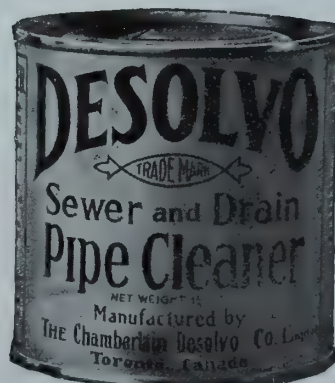
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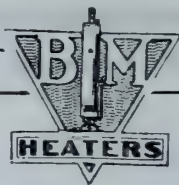
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Does a Better Job in Less Time



Guaranteed to give complete satisfaction



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Your customer is interested in—

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Marvel

NON-AUTOMATIC

You are interested in—

—a gas water heater that is easier and quicker to install, pays a generous profit, and makes a neat job.

And a B-M Heater meets both demands.

For a B-M Heater **does** heat water quicker and at a **lower** cost than the ordinary side-arm combination. By combining range boiler and heater in one—the Royal or the Marvel—gives the greatest possible efficiency by conserving and putting to work every heat unit. This is exactly what your customer wants.

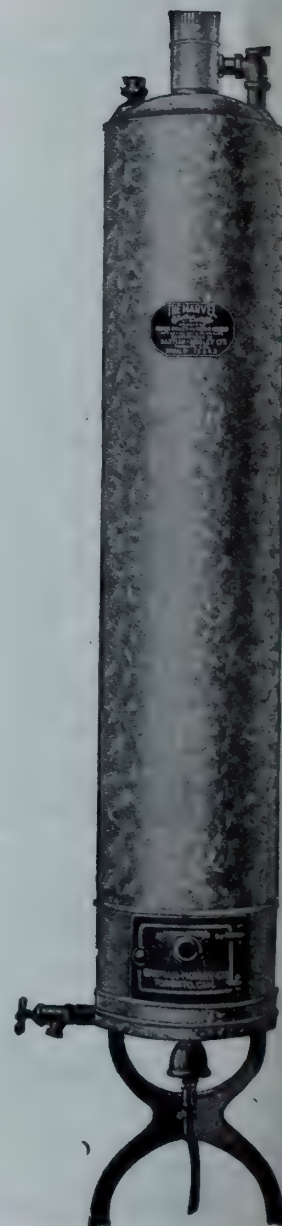
To the plumber's interest—it takes less time, by far, to install a B-M Heater. You have at least seven less connections to make than when installing the ordinary side-arm heater. And your installation is made at a lower cost to the customer through the elimination of the extra pipe, couplings and fittings. A B-M Heater is delivered completely assembled, ready to install.

Investigate these two B-M Heaters. They'll reflect to your credit through the absolute satisfaction they give. Send for literature and latest trade net price list.

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“ROYAL”

Toilet Combinations

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We commenced to market these Combinations in 1900 and those who have bought them have been well pleased, as they require little or no repairs and give complete satisfaction.

The tank is oak, well put together; and the lining is of 10 oz. copper, coated with a special preservative against the action of alkali or sea water, and we have yet to see any fibre or composition tank that gives the same service.

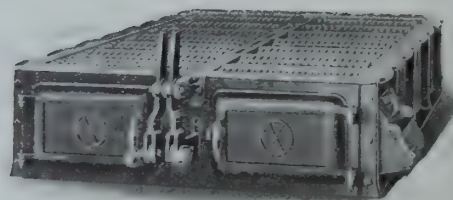
We can interest you in quality, price and delivery.

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These are Sectional Boilers of great efficiency for heating public buildings. The design and construction of both the Steam and Water Boilers are the same in every respect, the only difference in their outward appearance being that the Water Boilers are not equipped with steam trimmings.

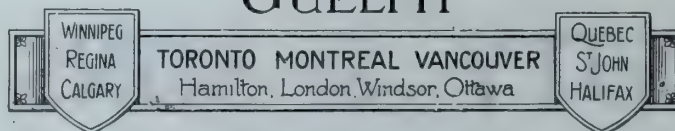
Prominent Features in the Taylor-Forbes Canadian Boiler :

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| —Drop Tube construction. | —Easy-acting grate bars. |
| —Each water section an independent unit. | —Burns hard or soft coal, coke or wood. |
| —All heat absorbed. | —Automatic Damper Regulator. |

Made in three types and five series of grate widths.

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Head Office & Works
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1174 College Street

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Contractor
PLUMBING and HEATING

Toronto, March 15th, 1921

Toronto Hardware Mfg. Co., Limited
 Toronto, Canada

Dear Sirs:

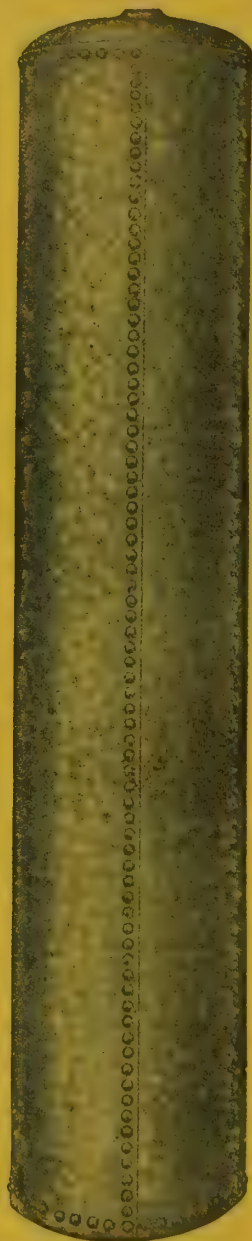
During my 14 years in business I have installed many riveted boilers manufactured by you and have only once to my knowledge had any cause for complaint.

Yours truly,

ARCHIE MELHUISH

14 years of satisfaction is a worthy tribute to the efficiency and quality of riveted boilers. The test of time is the best proof of value and service. Always specify riveted boilers.

Toronto Hardware Mfg. Co., Limited
 Toronto - Canada



All the Strength
— **Safety**
— **Reliability**
— **Efficiency**
— **Satisfaction**

of the Tried and Proven

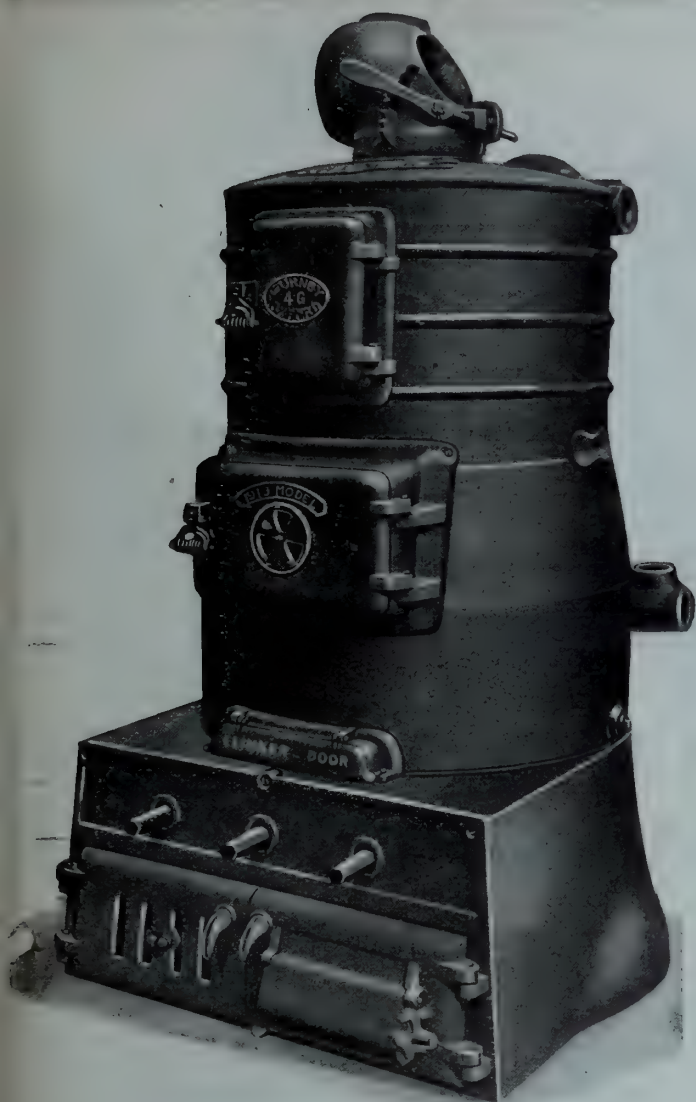
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*Built for Safety Like:
Bridges, Steam Boilers,
Skyscrapers and all
Work for Public Safety*

Toronto Hardware Mfg. Co., Limited
Toronto, Canada

*Specify Riveted Boilers When Ordering
From Your Jobber*

NOTE CUSTOMER'S VERDICT ON PAGE PRECEDING



Gurney Round Hot Water Boiler

Every year there are more than a thousand Gurney-Oxford Furnaces sold in Toronto alone, and thousands of them are distributed from coast to coast.

The Gurney-Oxford Furnace is as nearly troubleproof as it is possible to make iron and steel, and its installation insures both Comfort and Economy for your customers, and reflected good-will for you.

By installing Gurney-Oxford Furnaces you are establishing your business on the surest foundation known—satisfied and delighted customers who return to you with future business, and eagerly recommend your services to their friends.

If you are not already handling Gurney-Oxford Furnaces, investigate; they are builders of profitable and permanent business.

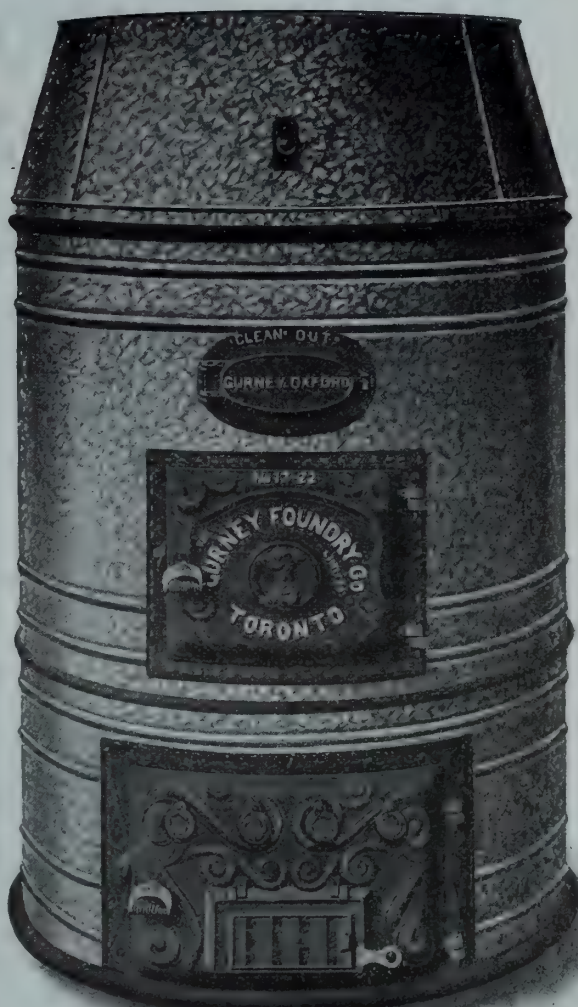
The Gurney Foundry Co.
LIMITED

Cooking and Heating Apparatus
TORONTO, CANADA



In the illustration of this popular and efficient Gurney Hot Water Boiler, we particularly invite your attention to the Economizer, the insloped walls of the fire-pot and first section, the push-nipple connections, and the extra capacity of the first section.

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Cased Gurney Oxford Furnace



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A MODERN hotel or apartment goes up in your community. Do the owners of the building give you a vote of thanks when they pay the bill? They ought to!

For a plumbing and steam-fitting job in one of these buildings nowadays is something to be proud of.

Few people realize the skill, patience, and downright good workmanship going into one of these jobs—with its gigantic system of steam pipes, water pipes, drainage pipes, electrical conduits—each doing its own important work—all under perfect control—an architectural wonder of the age.

If you have successfully completed a job like this, you can meet the owners of such a building with just pride. For back of that job was experience, planning, careful choice of tools, and the right handling of men, calculated to get the results you promised and agreed to deliver.

Let a business man know that you have

done away with those old fashioned jams, botches, bruises, and badly fitted work that used to make the plumber's job a *joke*, and are hiring the most modern tools—like the GTD kind—and he will realize the really fine service you are equipped to give him.

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Hire these tools today. Put them to work on the next job—and see how they double the value of your time and the work you are doing.

Do you want to know just how these GTD products excel over other tools? Here's how to find out, use the coupon—or send your name on a postal.

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OF CANADA, LIMITED - GALT, ONTARIO

Successors to Wells Bros. Co. of Canada, Limited, Galt, Ontario

GTD Corporation of Canada, Ltd., Galt, Ontario.

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, APRIL 1, 1921

No. 7

CONTENTS

Early Activity in Plumbing and Heating.....	25
Showing Complete Bathroom Sets.....	27
Demonstrate Unvented Plumbing Installation.....	28
Aerobic Sewage Disposal	29
Hints on Seasonable Advertising.....	30
Editorial Comment	32
Practical Sheet Metal Work	33
Sewage Disposal for Small Communities	36
Combination Heating Systems	37
Questions and Answers	38
Housecleaning the Plumbing Business	39
New Plumbing Goods	40
Systematizing the Plumbers' Office	41
News From Here and There	42
Current Market Quotations—Montreal, Toronto, Winnipeg.....	46

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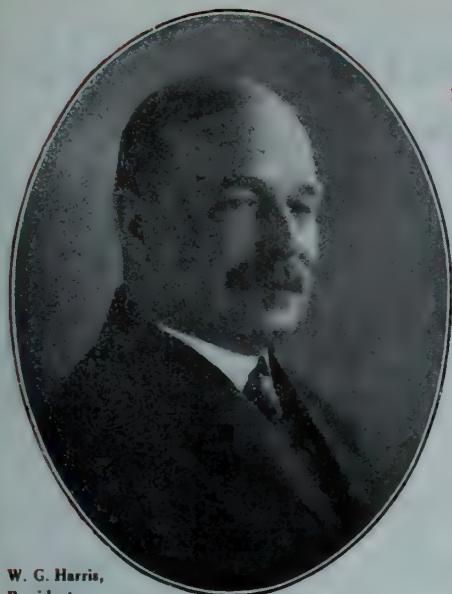
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W. G. Harris,
President

"PUSSYFOOT" CLOSET TANKS

The "Pussyfoot" Closet Tank is the newest and most up-to-date tank on the market.

It combines skilled design with handsome finish, and satisfies customers with its efficient service.

The "Pussyfoot" costs no more than ordinary closets, and is fully guaranteed. Silent, efficient, and durable.

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Our 35 years of an established trade, during which time C. M. C. products have stood the test, is a guarantee of satisfaction. Dealers appreciate our unusual facilities for prompt shipments.

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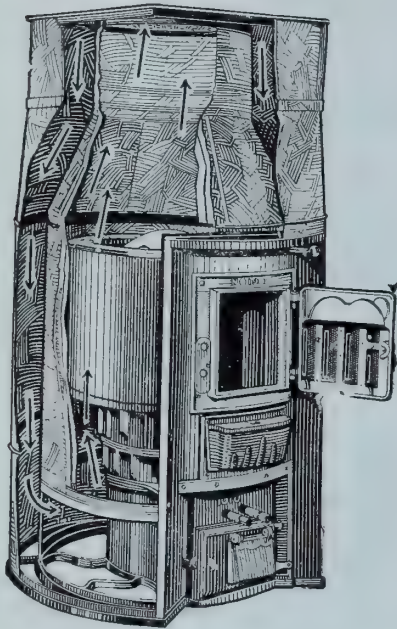
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for

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**We make it worth your while
to handle the**

BANNER *Pipeless* FURNACE



The Banner Pipeless Furnace

- provides 70° warmth in any house in the coldest weather.
- has no pipes to cause dust or dirt.
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- heats every room in the house through one register.
- can be installed in any house—new or old—in less than a day, without cutting walls or partitions. Nothing to do but connect single register directly over furnace to floor above. Satisfaction guaranteed or money back.

The Banner is being advertised extensively in a list of farm papers covering the sections where you do business. Customers will come to your shop to inquire about the Banner. In every advertisement we are asking the reader to see you, his local dealer, for a demonstration. Now it's up to you.

There is a worth-while opportunity here for liberal profits and much good will. Be the first in your town to handle the Banner and the bulk of the business is yours. Let us get together. Drop us a line to-day and we will send you full particulars by return mail. Remember we are out to boost your end of it as well as ours.

The Galt Stove & Furnace Co.

Limited

Galt, Ontario, Canada

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Volume XV.

TORONTO, APRIL 1, 1921

No. 7

Early Activity in Plumbing and Heating

Conditions Similar to Those of 1919—Shortage of Goods Later in Year May Be Experienced—Effect of New Building Soon to Be Felt—Expect Little Change in Brass Goods Prices—Eliminate “False Propaganda”

IN order to give the plumbing and heating engineers some definite data to help them to get a right perspective on the outlook in the plumbing and heating trades, the opinions of a number of manufacturers and supply firms have been secured which, on the basis of the trend of business during the first three months of this year, give some indication of what might be expected in the near future.

1921 Similar to 1919

“In comparing business of the first three months of this year with that of other years it must be remembered that the early part of 1920 was an abnormal time,” stated T. A. Stevens, president and general manager Empire Brass Mfg. Co., Ltd., London, Ont., to Sanitary Engineer. “Jobbers were buying ahead for the purpose of having a stock in anticipation of a very busy year.

“The early part of 1919, however, was the reverse of 1920 and corresponded very closely to the first three months of the present year. Later on, however, as soon as Spring opened up, every one became busy and there was a shortage of goods. The result being that every one was crowded and could not supply the goods in anything like decent time after the order was placed.

“It appears to us that 1921 is going to be very similar to 1919. The plumbers are buying just what they need for work they have on hand and contracts they get from time to time. The jobber is not laying in a stock. He is simply buying for his actual needs from day to day—showing that he has no great amount on hand, that his stock is depleted and apparently is waiting to see what the future will bring forth.

May Be Shortage of Goods

“We think this is to some extent a mistake. The manufacturer will very likely be in the same position a little later on in regard to being able to supply the demand as he was in 1919. As far as we are able to ascertain there will not be any reduction in the price of brass goods beyond the present prices. Prices have been reduced and they are not likely to go any lower.

“The brass manufacturers did not raise their prices during 1920, whereas those manufacturing iron goods in connection with plumbing goods raised their prices during 1920. Consequently they were able to make a greater reduction in prices in 1921 than the brass manufacturers. Under these circumstances, we think the job-

ber is quite safe in laying in a reasonable stock of goods.

“Comparing our sales for the first two and a half months of this year with the corresponding months in 1919, we find that our sales are greater than they were during those months and we are looking forward to a very busy year. Possibly it may be a little slow in opening up, but in our opinion there will be all the business we can possibly handle.”

Effect of Building Soon Expected on Plumbing Goods

Pointing out that while business in the past three months has been very scarce, and that this is customary during the early months of the year, G. A. Walker, of H. Mueller Mfg. Co., Sarnia, made the following statement to Sanitary Engineer:

“March usually starts off with a fair number of orders. This year, however, they have been coming in more slowly, due, I suppose, to the present depression and lack of confidence on the part of jobbers to stock brass goods, as they are sure that there will be a drop in them. Of course, our view of this does not coincide with theirs, as we fully believe present prices will be sustained for some time to come.

“It will be some time before building has progressed far enough to demand our goods, but as there is considerable building going on, or contemplated, we look for a fairly good-sized lot of orders in the very near future. By summer time we anticipate the usual amount of business and through the past winter have endeavored to hold our organization for a good business year. Customers are buying now only for their immediate needs and our salesmen have had little success in persuading them to stock anything more than is absolutely necessary.

“It is just possible that the lack of work this winter and short hours will stop considerable building on the part of a certain percentage of the population that otherwise would have done some building, and this may have the effect of reducing the sale of plumbing goods to some extent. Building reports which we have received lately lead us to believe that plumbing business will be just as good in the last eight months of 1921 as was experienced last year.

Insufficient Confidence

“Cost of steel, and the fact that money is rather tight, is partly responsible for the fact that not many factories are being erected because of the unwillingness

on the part of those having to advance the capital to wait for some months before production could be obtained and profits realized. This, taken along with the uncertainty of future markets and prices, is keeping many prospective manufacturers out of the field. A large part of this is due to the fact, I believe, that there is not enough confidence displayed by the average Canadian in the future for 1921. They are hanging back, afraid to venture, and to some extent this will affect building.

Good Expectations for 1921.

"So far as prices are concerned, copper, which forms about 85% of the metal used in our plumbing goods is lower than it has been for years. Some close students of business say that there is some likelihood of another small rise in prices, but of course we view this as being only a statement put forth by those who are just as likely to make mistakes as any of us. We have great expectations for 1921, and have full confidence that we will do as much business or more than has ever been done by this plant."

Eliminate the Camouflage.

Taking the stand that it is time to eliminate the camouflage and false propaganda and deal with the situation on its true merits, G. E. Fisher, manager Canadian Brass Co., Galt, Ont., makes the following statement:

"Business for the first three months of the present year has been conspicuous by its absence, and no concern trying to operate a manufacturing plant has been able to break even during this period. The remaining nine months are as much your guess as ours, but it will be seriously benefited by an honest desire on the part of every one connected with the business to tell the truth to one another and a determination to refrain from lurid forecasts of the future, unless they are willing to do their part by backing their oral optimism with purchases to enable the wheels of commerce to keep on turning.

"As far as prices are concerned, we honestly believe that the lines we are interested in are consistent with conditions as they exist to-day, and as long as labor, which to-day is the big item, remains as it is, there should be little tendency towards lower cost. However, a time like this is not one when such a question can be intelligently discussed; what we want is more activity, or possibly more determination on the part of the plumbing trade to go out in the field and develop business. We know many manufacturers who firmly believe that general quiet times are opportunities to sell specialties. If the plumbing trade find it hard to get business on staple lines from the masses, they will find the classes with plenty of money to buy high grade specialties if they are properly presented."

C. A. Lusby, secretary and treasurer

Standard Drawn Up By Master Plumbers

Special Committee Recommends Schedule as Guide in Fixing Wages—Journeyman Satisfied—Mechanics, Plumbers and Steamfitters Be Paid According to Work Done

AT a special meeting of the Montreal Master Plumbers' Association, D. A. Bethune presiding, the report of the special committee appointed to study comparatively the amount of work performed by mechanics, plumbers and steamfitters, and the relation of the work done to the wages paid, was unanimously adopted by the association. The amount of work which a plumber does in the course of a day's work rather than the amount which he is paid per hour was the standard adopted.

Amherst Foundry Co., Amherst, N. S., states that at the present time there is nothing definite of an encouraging nature to outline. The experience of this firm during the first months of this year has been similar to some of the others quoted, namely, a shortage of business. Improvement in the outlook is expected, but it is thought this will perhaps not develop until about May. "We do not anticipate difficulty in getting supplies, neither do we look for a very heavy decline in prices," stated Mr. Lusby.

Speaking of the business outlook at the annual meeting of the Port Hope Sanitary Mfg. Co. in Toronto, President L. M. Wood made the following statement:

"The year 1920 opened with a rush and promised a largely increased business with good profits. Operating conditions, however, became so difficult on account of scarcity of raw materials, unreasonable demands from labor, and poor production, that the slump in business which developed in the Fall was in many respects a distinct relief.

"It has provided an opportunity to make those adjustments which were necessary to get back to conditions approaching normal, with the result that our plant is now operating on a much more satisfactory basis than for some time past.

"The outlook for the coming year is favorable. A great deal of new building is contemplated, particularly of that class in which the company's products are used. Prices of builders' materials are being reduced, and if harmonious conditions can be maintained between employer and employee by the recognition of the obligations on both sides, the chances are good that we shall have a period of active building which will continue for some years. Prices will, perhaps, decline further, but if so, the process is likely to be gradual, and builders who are waiting for drastic declines will, in our opinion, be disappointed."

The report declared that the members of the committee, after studying closely, and in many cases personally, the amount of work completed by each of their mechanics, were struck by the great disparity in the results obtained. In the course of their investigations it was clearly established that in certain cases some employees turned out three times the amount of work as did others who were working under practically the same conditions, and the committee considered it a handicap not only to the building trades in general and the plumbing and steamfitting in particular, but also a hardship to many of their workmen that the wages bore at present no relation to the efficiency and output of their mechanics.

The Shirker Protected by Uniform Rate of Wages

"Men must be judged by the work they perform and be paid accordingly," adds the report, "inasmuch as all men are not equally proficient at the trades, and to have a uniform rate of wages applicable to all engaged in a particular trade saps ambition and initiative, makes living easy for the slacker and the shirker, encourages discontent and dissatisfaction with their conditions among the workers generally, and ultimately places a burden on the public which it has no right to bear."

A Schedule Presented

The special committee, accompanying their report, presented a schedule of work, recommending that it should be adopted by the members of the association as a guide to them in fixing the wages to be paid their mechanics. The schedule deals with practically all work the master plumber contracts for, giving in detail the laying of water pipe, underground drains, roughing in and fitting a complete bathroom, installing hot water and steam boilers, including the placing of the boiler, the connecting of radiators, etc., stating the time that should be taken to complete the certain job, and a space for the actual time taken.

In order that the schedule would be concrete and practical the committee not only consulted its own members, but also the members of the association at two general meetings. As now drafted, representative journeymen, plumbers and steamfitters expressed themselves as being satisfied with its fairness.

The president stated that copies of this schedule would be printed in pamphlet form and distributed broadcast.



EXTENSIVE DISPLAY OF PLUMBING FIXTURES

The showroom of plumbing fixtures in T. McAvity & Sons, Ltd., store, St. John, N.B. Closet combinations are shown in the centre. Complete bathroom sets enclosed with tiling are shown on the right. These sets are held to be largely responsible for many sales made in this department. On the left are shown arrangements of sinks, laundry tubs, etc. The stock is kept clean and well polished and with plenty of natural light the department presents a striking appearance.

Showing Complete Bathroom Sets

Most Effective Way to Sell Bathroom Sets is to Show Prospect What They Will Look Like When Installations are Made—Seven Model Bathrooms to Choose From—Window Displays and Advertising Pull Together

“YOU can get it at McAvity’s,” is a slogan which applies with much force to the plumbing department of Messrs. T. McAvity & Sons, Ltd., of St. John, N. B. Although this firm have handled plumbing supplies on a large scale for many years, it was not until the beginning of last year that they decided to devote a special department to the displaying of bathroom fittings and fixtures. Before this new department was opened, the company used a portion of another department as a show room for this class of goods, but the business was increasing to such an extent that they were forced to find more space. It was decided to make a show room upstairs on the second floor, and devote it entirely to the displaying of bathroom fixtures. This new department is large and airy, with high ceilings, and is over one hundred feet in length and twenty-seven feet in width, giving a floor space of 2,700 square feet.

The floor is of polished hardwood and the walls are tiled all around the department to a height of five feet; the top part of the walls is panelled and painted in white enamel. The whole appearance is one of absolute cleanliness, and very favorably impresses visitors, who are always particularly struck by the sanitary appearance.

Seven Model Bathrooms.

Realizing that the most effective way of selling bathroom fixtures is to show the prospective buyer exactly what his bathroom will look like when all installations are made, Messrs. McAvity have completely fitted out no less than seven model bathrooms, each containing bath, toilet, lavatory, mirror, cabinet, towel rails, soap and sponge holders, toothbrush holder, and bath seat. With a selection of seven model bathrooms to choose from, customers have no difficulty in picking out an outfit that will satisfy

their tastes. Running along the centre of the department is a raised platform built for the purpose of displaying closets, traps and other fittings. This platform is also of polished hardwood, and is in keeping with all other woodwork in the department. It is particularly adapted for showing closets for private houses, hotels, factories, ships and railways, and displays to good advantage this class of goods. On the further end of this platform is displayed bubble fountains and pedestal wash bowls. The company does a large volume of business in this line of goods, practically all drinking fountains in the city of St. John having been purchased from them. On the left hand side of the wall is arranged a display of more than thirty different types of high and low back sinks, lavatories and wash bowls. These are attached to the wall at the correct height, and are complete with taps, plugs, etc., making the choice of

a sink or lavatory a very simple undertaking.

Show Case for Accessories.

At the far end of the department is a large glass fronted show case, used for the purpose of displaying glass and nickel towel rails, hangers, mirrors, soap dishes, sponge holders, tooth-brush holders and other accessories that go towards making a modern bathroom complete. This case is of solid oak, and the whole thing presents a very attractive appearance, being well stocked with the highly polished fittings on a dark green felt background. There is also an oil heating outfit for heating the bath water in summer time, when the housewife may be cutting down the coal bills by not using the kitchen range. This outfit is all coupled up ready for use, and can be demonstrated for the benefit of intending purchasers.

Practical Advice.

The plumbing department of T. McAvity & Sons, Ltd., is under the supervision of T. E. Clark, who is an expert in all matters pertaining to the modern plumbing of any home, and is in a position to give practical advice to intending customers. Mr. Clark has been many years in the employ of the company, and was chosen for this particular department because of his special ability in plumbing work. A large catalog was compiled by Mr. Clark some time back, and this catalog has been of great assistance to the company in securing business, and, containing as it does illustrations of many suggestions for bath-

"R—" Closet Combinations

"Are Fit For Any Bathroom"

Their quiet action practically silences the rush—swish—hiss and gurgle of the flushing operation. Why install a noisy closet?

Yes, we sell everything to plumb a house from cellar to garret — Bath Tubs, Lavatories, Sinks, Galvanized Boilers, Malleable Fittings, Soil Pipe Fittings, Bibbs, Basin Cocks, Double Bath Cocks.

Repair Parts, Washers and Gaskets
Always in Stock.

McAVITY'S

Sample of one of the ads used on bathroom fixtures by T. McAvity & Sons, Ltd., St. John, N.B. Note that the silence of the closet combination is emphasized. Mention is made of the numerous other lines handled in the plumbing department. The window displays and the advertising are generally concentrated at one time upon a certain fixture.

rooms, is very valuable to all home builders. Mr. Clark informed SANI-

TARY ENGINEER that customers are delighted with the opportunity of seeing a bathroom all fitted up, just as it will appear in the home, and in many instances customers follow out the plans and layout of the model bathrooms displayed. Mr. Clark also believes that to get the best results from the sale of bathroom fittings they should be handled in an exclusive department. By doing this, the samples can be kept free from dirt and dust, and spotlessly clean. He is a firm believer in absolute cleanliness so far as bathroom fittings are concerned, and the appearance of his department carries out his convictions, for no home could keep its bathroom in a more cleanly condition than that of the McAvity plumbing department.

Window Displays.

Special window displays are frequently made, and in every instance the display features a complete bathroom. This method of display is found to be more effective than a window crowded with a large assortment of stock. Special care and attention is always devoted to these window displays, and some very beautiful trims have been made, bringing forth many remarks of admiration from customers. Fred S. Stewart, the company's advertising manager, whenever possible, endeavors to regulate and write his copy to conform with the window displays, and when an advertisement of bathroom fixtures appears in the local papers, patrons of the store are always met at the windows with a display of the goods they have been reading about in the morning or evening paper.

Demonstrate Unvented Plumbing Installation

Alberta Convention of S. & H. Engineers Applies to Provincial Health Department to Instal Job for Experimental Purposes—Inconsistencies in Plumbing By-law to be Protested—An Aerobic Tank System Practicable if Installed Close to the Building

A BRIEF report of the convention of the Alberta Association of Sanitary and Heating Engineers appeared in the March 15th issue of Sanitary Engineer, the convention having just been concluded as that issue was going to press. Further details in connection with that convention have since been received and are outlined herein.

In addition to a representative gathering of delegates from the province, there were also in attendance a number of representatives of the wholesale firms. The Saskatchewan Association sent their new president, C. A. Green, who gave to the members the benefit of the deliberations at their recent convention, as outlined in the March 15th issue of Sanitary Engineer.

The features of the first day were the lectures by E. J. Young and Jas. Marr, Sr., of Calgary. Mr. Young gave a very

interesting lecture outlined by the National Trade Extension Bureau and Mr. Marr demonstrated by a miniature system in glass an unvented plumbing installation, using a special fitting designed by himself. This demonstration created considerable comment and resulted in a resolution being passed to apply to the Provincial Health Department for permission to install a job for experimental purposes to ascertain the results in actual working conditions.

The discussion with the supply men brought out some features wherein the Plumbing By-law recently passed by the Legislature was not consistent and the society will endeavor to have these rectified.

The lectures of the second day were also of great interest to the trade. The one given by William Parker and E. J. Sehl, of Lethbridge, on "Bookkeeping

Forms" gave valuable data for the members to remodel their method of keeping accounts and contract records. "Septic Tanks and Construction of Disposal Beds," written by S. Jennings, of Edmonton, and read by Mr. Kelcher, of Edmonton, was exceptionally well received and brought out the story of many varied experiences. Mr. Green gave the conclusions arrived at in their experience in Saskatchewan and this was that the anaerobic tank system was quite practicable if installed close to the building. The one advocated by Mr. Jennings and approved by the Alberta Department of Health is the aerobic tank with which it is claimed that the effluent can be discharged into any slough or stream. Exception was taken to this, as it was contended that this effluent was still poison.

The formation of an inter-provincial
Continued on next page

Aerobic Sewage Disposal

Climatic Conditions an Important Element—Aerobic Systems Prove Distinct Success—Method of Introducing Air Into This System—Rapid Decomposition in Aerobic Receiver

Address by S. Jennings, Edmonton, Alta., before convention of the Alberta Association Sanitary and Heating Engineers

THE disposal of sewage from public buildings, institutions and homes in places where city utilities do not exist, has become a large and important branch of sanitary engineering. The necessity for sewage treatment is rapidly increasing, and legislation has been passed in several provinces compelling proper methods.

The design of sewage disposal systems requires experience and study on the part of the sanitary engineer; each system is different, and difficulties present themselves, calling for special attention in order to obtain the best and most economical result.

Climatic conditions enter into calculations to a large degree when considering the question of sewage disposal, and a system well adapted for a temperate zone would be a failure if used in a climate such as we are accustomed to. It is with this hard climate that we have to deal, and these notes are applicable in so far that they refer mainly to Alberta. I will not say that the same method would not be successful elsewhere, but I believe a lighter system is used to very good purpose in other provinces.

To Overcome Freezing of Septic Tank.

The aerobic sewage disposal system, as its name implies, is a system featuring air, and depends for its successful rendering upon introducing air into the system. There are two kinds of bacteria with which we deal in connection with sewage, and they are known as anaerobes and aerobes; the former work in the absence of light and air, and the latter the reverse. To accommodate anaerobic bacteria, the septic tank system was devised, with which, no doubt, you are all familiar, and aware that, to ensure operation successfully, it is imperative that the field tile be laid at a depth not greater than 18 inches below the surface of the ground. This is contended to be the weak part of the system, and experience has proved, despite all theoretical ethics to the contrary, that the system will freeze in a hard winter, and to overcome this freezing, the aerobic system has been devised which, under any ordinary conditions, is freeze proof as well as fool proof. In consultation with R. B. Owens, B.A., Government sanitary engineer, the aerobic sewage system was instituted, and it has proved a distinct success. No complaint of any description has been received as to its working. Several are in use, the Provincial Government hav-

ing had them installed for schools at Gleichen, Raymond, Youngstown and Vermilion, each installation having a capacity of nearly 4,000 gallons per day; also several private owners have had aerobic systems installed, and are perfectly satisfied as to their usefulness and reliability.

Construction.

As already stated, the aerobic system depends solely upon aerobes to do the work, and to accommodate them a concrete tank or receiver is built, the size of which is determined by the number of persons using the system and the amount of sewage to be disposed of. A general survey of the configuration of the ground is taken, and a site chosen; the receiver is then built, having a semi-dividing partition at the end containing the syphon. The receiver is of a size of sufficient capacity to hold from 24 to 36 hours' discharge from the building being served. As the sewage enters the receiver it falls on to a series of baffle floors, which are staged in the receiver one above the other to a height of within two inches of the water line which operates the syphon, these baffle floors having perforations equal to about 25% of their area, and laid with the perforations staggered in conformity. The purpose of these floors, which are of wood and of which there are generally four, is to receive the crude sewage and retain it for the aerobes to attack and break up, and as it falls to the immediate baffle floor below, so it becomes more condensed and is ultimately siphoned into the disposal field; these baffle floors soon become coated with a jelly-like coating which is simply an adhesive film of millions of aerobes eagerly waiting to devour the raw sewage as it enters the receiver. These aerobes are short lived and have life for 24 hours, but as soon as they die off, which they do in the form of gases, another generation takes their place, and the operation continues merrily on. The introduction of chemicals is very harmful to these aerobes, and the too frequent use of lyes and such-like should be discouraged from being poured into the system.

Introducing Air.

The method of introducing air into the system, which is so vital for these aerobes to work, is brought about by continuing the end of the trunk line of the disposal field up to the surface of the ground, and by means of by-passing the syphon the air is drawn through

the disposal field, thence through the receiver by the difference in height and temperature between the soil stack in the building and the pipes underground. This also ventilates the system and disposes of the accumulated gases given off by the dying aerobes. The disposal field should be large enough to accommodate two discharges of the receiver and must be laid with very slight fall or nearly level from the syphon. This means that the depth of the disposal tile must vary with the slope of the ground, and as the syphon is placed at the lowest part of the receiver, it follows that the depth of discharge is below frost line, and therefore freeze proof.

Several experiments have been carried out to test the reliability of the aerobes working under conditions as enumerated, and amongst the many may be mentioned that a piece of cheese, always admitted to be a hard digestible quantity, was placed on the top baffle floor in an aerobic receiver, and within 30 hours it was taken out and found to be perfectly black and in a very advanced state of decomposition.

DEMONSTRATE UNVENTED PLUMBING INSTALLATION

Continued from page 28

association was brought before the meeting, with the result that a committee was appointed to consider and present for approval the objects and benefits to be obtained by such an organization.

Election of Officers

The election of officers resulted in the re-election of R. J. Priestly, of Calgary, president; F. Hick, of Lethbridge, vice-president; E. P. Fletcher, Calgary, secretary-treasurer.

H. C. Phelps, the retiring secretary-treasurer, was presented with an honorarium for his past services.

Throughout the whole convention the spirit of co-operation was manifest; and it was conceded that the relations of all connected with the trade had improved the last year, due to a better understanding of conditions governing each.

The only rivalry was a challenge on the part of the jobbers to a curling match, issued to the veteran James Marr, and they proceeded to demonstrate that they were capable of slipping one over, in more ways than one, as they succeeded in winning out, although it was an exceedingly close and hard fought game.

The 1922 convention will be held in Calgary, which being a more central location, a much larger attendance is anticipated.

Hints on Seasonable Advertising

A NUMBER of the ads used in local newspapers by plumbing and heating engineers in various parts of Canada, dealing with plumbing, heating and tinsmithing, are shown herewith. These illustrations and the descriptive matter of other ads may be used by others as the basis for their own advertising. The generous use of illustrations is a feature of effective advertising on these subjects.

A number of suggestions for tinsmithing are made in the ad by J. McKinnon, Kamloops, B.C., as illustrated. This plan of making specific suggestions is a good one for the property-owner oftentimes neglects to look where trouble may be expected and the result is that he seldom finds it until the damage is irreparable. Special mention is made of copper bottoms for boilers, renewal of scale scoops, stove pipes, etc. A neat illustration is used to



We Repair Tinware

as well as make all kinds of tin and sheet metal work. If your boiler needs a new copper bottom, your scale scoop needs renewing, your stove pipes want replacing come right here where you can have exactly what you want done in the least time for the least money good work and good materials will permit.

J. McKINNON
Heating and Plumbing.
P. O. Box 185 Phone 36 121 Victoria St.

catch the attention and it is always well to give the telephone number as shown.

* * * * *

SHOWERS

Making particular mention of showers as part of the bathroom equipment, the ad by D. N. Flander, Ingersoll, Ont., shows an illustration of the housewife proudly drawing attention to the shower installed in her home. Mention is made of the fact that without a shower bath one misses much of the pleasure of bathing. It is also well to mention the other point outlined, namely, inexpensiveness, lack of disturbance in the home and the satisfaction after use.

* * * * *

GOOD HEALTH

Under the heading "Good Health" the ad by Young Plumbing Co., Calgary, Alta., makes the statement that "there's nothing that costs so little that's worth so much." It continues by pointing out that good health will not be found in any house that is not fitted with modern sanitary bathroom, kitchen and laundry fixtures. An offer is extended to visit the showroom and utilize the expert advice provided.

* * * * *

That a job worth doing is worth the best possible efforts, no matter it be large or small, is the point made in

the ad by Henry E. White & Co., Brantford. This is somewhat of a general ad, driving home the fact that good attention will be given any work and that many years of experience will insure the work being done right.

Good Health!

There's Nothing That Costs So Little That's Worth So Much!

But you cannot be sure of good health in any house that is not fitted with modern sanitary bathroom, kitchen and laundry fixtures.

Our show room display and expert advice is at your service.



YOUNG PLUMBING CO. LTD.
Sanitary and Heating Engineers
615 FIRST ST. EAST - CALGARY, ALBERTA

BUILDING A SKYLIGHT

An ad on tinsmithing, under the above heading, by R. Chestnut & Sons, Limited, Fredericton, N.B. (plumbing department), points out that a skylight of tin, galvanized iron, copper, zinc or other sheet metal is one of the firm's special jobs, in which great pride is taken. The fact that many satisfactory jobs have been done is pointed out in the statement: "If you could go up in an airplane and see the skylights on the roofs of this city you would see many of our make." Mention is also made of the fact that roofs, pipes, gutters, cornices, eaves, fronts, etc., are made to order.


* * * * *

MODERN PLUMBING

Making the point that housework is a pleasure if the house is equipped with a model kitchen and up-to-date plumbing, the ad by W. E. Butchart, Vulcan, Alta.,

WE WORK

On the principle that a job worth doing, whether large or small, is worthy of our best efforts. Your plumbing work in our hands, whatever the size or nature of the job, will receive the benefit of our long experience and thorough competence. We guarantee satisfaction, and the price will be right.



HENRY E. WHITE & Co
Plumbers and Electricians,
250 COLBORNE ST. - Phone Bell 534

shows an illustration of a kitchen and states that it is never any trouble to quote prices and give estimates.

* * * * *

"No plumbing job has us dismayed—
We've learned quite well the plumbing trade."

Commencing with this piece of poetry, an ad by John Lewis Co., Belleville, Ont., continues: "We'll get to your home in a hurry at the first signs of trouble. There's no

repair job too small to get our attention. We're the emergency plumbers—always ready to answer your call. We'll answer questions, too, if you seek our advice."

* * * * *

PUT US TO THE TEST

Under this heading an ad by Shannon the Plumber, Toronto, states: "Most plumbers do their work fairly well—many do their work very well, but Shannon plumbers do their work exceptionally well. Do it promptly and satisfactorily. If you are particular about the work you have, you owe it to yourself to put Shannon service to the test. And you may make the test as exacting as you will. Our men will measure up to the most critical test you can put them to."

* * * * *

BUILDING THIS SUMMER?

Under this head an ad by D. Howe, Ingersoll, Ont., states: "You doubtless know to what extent your home comfort depends on good serviceable plumbing. We specialize in this work and have done for many years. Be-

HAVE YOU A SHOWER



in your bathroom? If not you are missing a large part of the pleasure of bathing. Have us put one in for you. The expense will not be great, nor will there be any disturbance in your home. We'll do the work so quickly you'll hardly know we have been there. And we warrant you that once you use the new shower you wouldn't be willing to do any money

D. N. FLANDER

Ing. Phone 12

INGERSOLL

We will Accept Bonds in Payment of Purchases at this Store

fore you let your contract come in and talk it over. We can save you money, yet give the best job—both count."

This ad, though run in small space, is effective through the use of bold type and the asking of a question which will catch the interest of those who are the best prospects for plumbing and heating work.

* * * * *

FRANCO VILLA

"The Mexican outlaw, while engaged in guerilla warfare in Mexico, had sent him from Chicago an enamelled bathtub constructed on wheels, which he had transported from place to place as his engagements required."


Opening with this piece of interesting information an ad on modern plumbing equipment, illustrating a bathtub, by T. J. Minnes & Co., Brantford, Ont., continues: "There is no occasion in Brantford for such an arrangement, as we can instal an up-to-date sanitary bath in your own home with brass, nickel-plated parts, supplied with hot and cold running water, which Villa didn't have." The ad concludes with an invitation to telephone for an estimate.

"Both the equipment we furnish and the manner of its installation will stand the most rigid inspection," says an ad by Port Colborne Supply Co., illustrating a bathroom outfit. It continues: "When we instal a bathroom outfit we instal it to give satisfaction in the future as well as in the present. By carefulness in regard to the details

TO DO YOUR OWN WORK
is a pleasure if your house is equipped with a model kitchen and

UP-TO-DATE PLUMBING
It is never any trouble for us to quote prices and make estimates for you.
If you are thinking of building, re-modelling or repairing send for us. We make a specialty of

CONTRACTING ON PLUMBING AND HEATING



W. E. BUTCHART

VULCAN Phone 58 ALBERTA

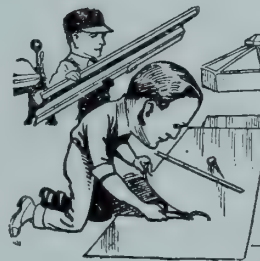
we guard against those annoying little troubles which always develop when bathrooms are carelessly installed. We will be glad to give you an estimate of the cost of the work and equipment you require."

* * * * *

EQUIPMENT IS COMPLETE

Making the point that the firm has complete equipment for looking after sheet metal work, an ad by J. McKinnon, Kamloops, B.C., states "our equipment for sheet metal work is so complete that we are amply able

Building a Skylight



of tin, galvanized iron, copper, zinc, or other sheet metal is one of our special jobs in which we take great pride. If you could go up in an airplane and see the skylights on the roof of this city, you would see many of our make. We also build to order complete roofs, pipes, gutters, cornices, eaves, fronts, etc.

R. Chestnut & Sons, Ltd.

PLUMBING DEPARTMENT

H. W. Thorne, Mgr. - Phoenix Sq., Fredericton

to fill any order, large or small, whether it be for new flues for the furnace in the cellar or a new roof or cornice for the top of the house. We will gladly furnish you with an estimate for any sheet metal work needed. YOU'LL find our figures very reasonable."

Sanitary Engineer

Plumber and Steamfitter of Canada

ESTABLISHED 1907

Member Audit Bureau of Circulations

PUBLISHED TWICE MONTHLY BY

The MacLean Publishing Company, Limited

Montreal

TORONTO, CANADA

Winnipeg

THE ANNUAL SPRING NUMBER

THE fifteenth annual Spring Number of *Sanitary Engineer* reaches the plumbing and heating trades of Canada at a time when the information contained herein will be of most use if put into practice. Much intelligent thought must be given to business these days in order that the maximum amount of business may be conducted with as low a ratio of costs as possible. In view of the frequency of price changes during recent months stocks held by jobbers and operators are light and buying is in restricted quantity. Already there are signs of a renewal of building activity in many parts of Canada and there are those who fear a sudden demand will result in a shortage of plumbing goods similar to that of 1919. The plumber must steer a middle course, taking all contingencies into consideration and endeavoring to put his business in such shape as will enable him to take advantage of all possible business and at the same time to protect himself against the fluctuations of the market.

This is not by any means an easy course to follow, and it is only by keeping a close watch on all developments and planning along logical lines that the difficulties which threaten may be passed safely. This is where the information contained in a trade newspaper like *Sanitary Engineer* can be of greatest help to its readers and this is a further argument why this information should be applied at every opportunity. There are many articles in this issue outlining data of value to every plumbing and heating operator and these should be carefully perused.

REVISING BASIS OF WAGES

AN important move in revising the basis of wages paid to journeymen by master plumbers is the action of the Master Plumbers' Association of Montreal, which after much study of the question has recommended a schedule to act as a guide in fixing wages. This schedule deals with practically all the work handled by a plumbing shop and sets aside a certain time as sufficient to complete the various stages of the work. Thus there will be a general application of certain standards of wages paid according to work done.

It is apparent that one of the chief advantages of the plan will be the greater fairness in paying a man according to the work he accomplishes rather than on the basis of a set wage per hour. It is evident that the journeymen realize that the plan works to the advantage

of the most efficient operators because they heartily endorsed the schedule. The few who benefited under the former plan at the expense of the conscientious and energetic operators will be encouraged to put forth better efforts and so the plan is expected to help all concerned. It will also help to remove the too general opinion among those who require the services of the plumber that he is an inefficient worker whose charges are all out of proportion to his ability.

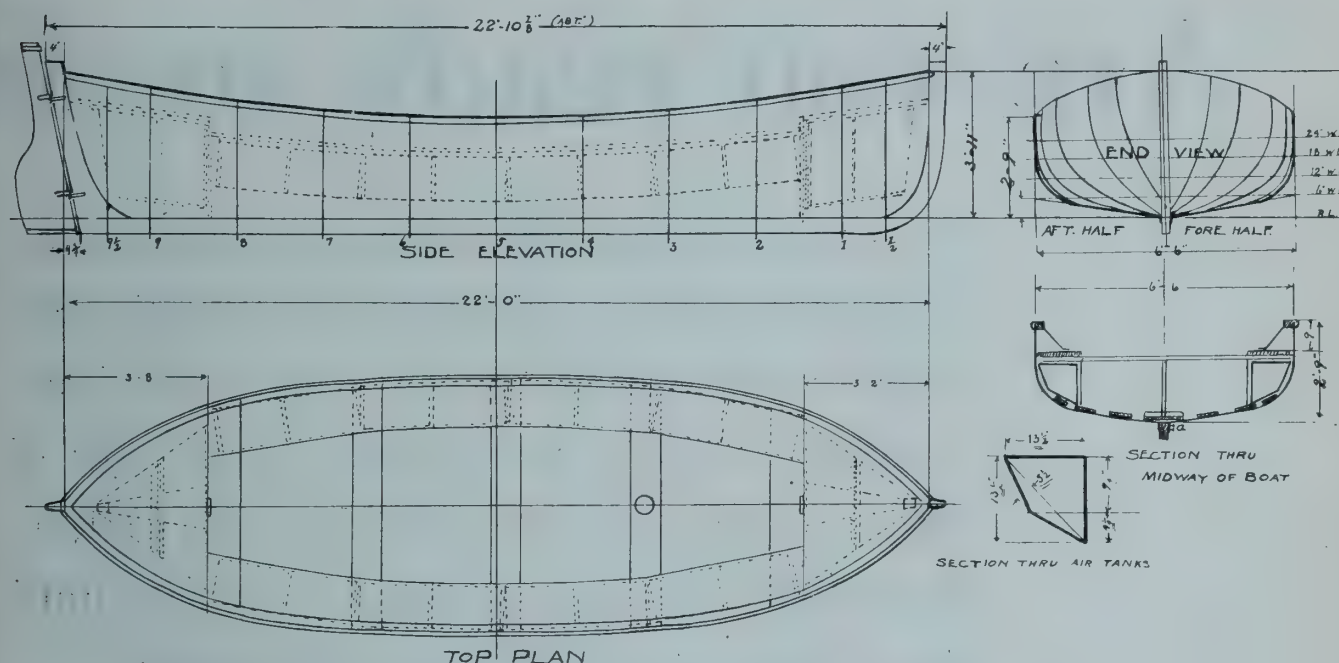
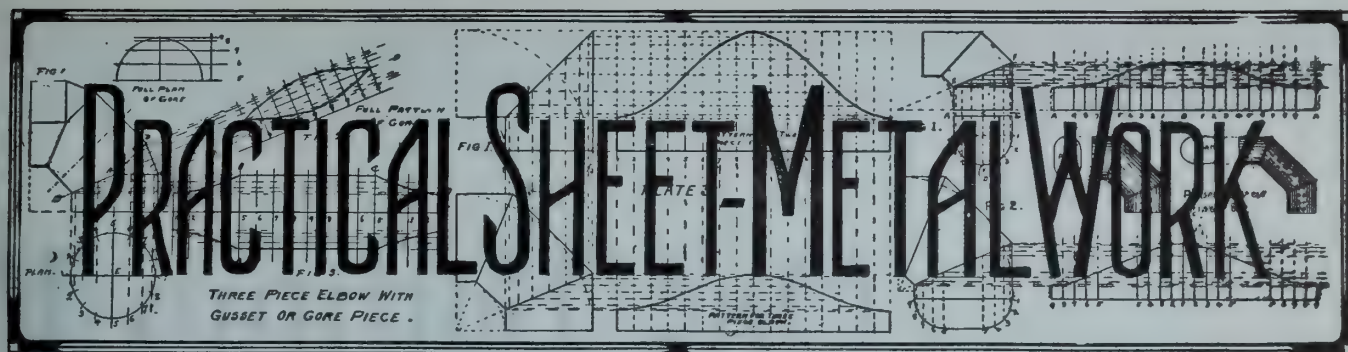
THE BUSINESS OUTLOOK

THERE is no gainsaying the fact that business during the first three months of this year in plumbing and heating supplies, particularly in so far as brass goods are concerned, has not come up to the expectations of at least some of the manufacturers. This fact is plainly stated in the opinions expressed elsewhere in this issue. On the other hand, one firm states that business during that period is in excess of that of the same period in the year 1919, at which time conditions prevailing were similar to those now evident. Plumbers' and jobbers' stocks are light at the present time and the sentiment has been expressed that a shortage of goods similar to that experienced later in 1919 will be felt here if the expected revival of business materializes.

Little hope of reduction in prices on brass goods is held out by manufacturers, who point out that during 1920 brass manufacturers did not raise prices as did those manufacturing iron goods for use in the plumbing and heating trade. The result was that the latter manufacturers were able to give greater reductions in proportion than the brass manufacturers.

ELIMINATE FALSE PROPAGANDA

THERE are many who will agree with the opinion expressed by one manufacturer that it is time to eliminate the false propaganda and "camouflage" and look the facts straight in the face. It is well to have confidence in the future and to be optimistic, but not to such an extent that the true facts of the matter are belocuded. However, even the majority of those manufacturers whose opinions are quoted herewith believe that business will very shortly become active and that a good year will be rounded out. There is no question that a resumption of building on a larger scale than for some years has now been commenced and as these new buildings progress they will require considerable plumbing and heating goods. Meanwhile, special efforts should be put forth by the plumbing and heating engineer to develop trade in specialties and in renewal installations in existing buildings. After all, the true test of the ability of the plumbing and heating engineer to conduct a business is the success with which he can develop new fields of business to keep the wheels moving until a return to normal times, when the regular business and the new business combined will provide an adequate reward for the efforts expended.



LIFEBOAT DRAWING

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri

THE making of row-boats by the layman mechanic is not easy. First there is the design, the size in length, width, and depth, and then there is the matter of developing the layout into patterns that will fit.

In our annexed drawing we have a full side elevation or sheer view. Observe we have the frame lines and at the bow and stern at frames 1/2 and 9 1/2 an extra frame is set. In row boats these frames take on the form of channel bars of about 1 1/2 to 2 by 5/8 flanges. The keel and bow post as well as stern post are of wood about 2 x 4 inches. The metal is put on in strakes, with flanges turned out against the wood and nailed, placing the nails staggered. A layer of canvas well soaked in red lead is laid between the wood and metal.

The galvanized iron varies from 20 gauge to 16 gauge, and the strakes are about 4 to 7 inches wide, according to the size of boat, and curvatures required in it. From the midway section through boat we see how the boards are placed

in the bottom. These are bolted to the rib bars, and while inspecting the top plan with the other views, we see the air tanks which are placed beneath the seats. These tanks are made in sections of about three feet long and shaped as shown in the plan. Their purpose is, if the boat should be filled with water and even though 18 or 20 people were inside, the boat would not sink, and would maintain itself sufficiently near the surface to enable rescue.

Ordinarily the outlines in the fore half of end view would be used as profiles for ribs in the front half of boat, and the other half, for the back half. Here we have omitted the elevation level lines and plan lines to better show other features of boat construction. For the layman mechanic who only makes one of these, it is just as well to construct a skeleton frame, placing the rib bars in place, and temporarily clamping them to wooden strips. Over these wood batten- ing strips, strips of building paper about five to six inches wide are laid and

tacked in place. This enables the workman to see the curvature and the proper width of strakes required, to prevent special shaping of the metal. Observe if strakes are made too large, buckles will form, and this must be overcome by making the strakes narrow enough so it will lay tangent to form.

The paper strips are lapped about an inch or one and a quarter inches, using two rows of rivets two inches apart and staggering them for the metal. In this way the paper templets for only one-half of the boat are lifted. Afterwards metal patterns are marked from the paper templets and lap edges marked and rivet holes punched. Great care must be taken while assembling, because the patterns are very liable to shift during the riveting process.

Workmen more skilled in pattern drafting could lay out each individual strake by triangulation. This is a simple process, as our elevation lines will give us the rise, and the plan the off-

Continued on page 56

One Bathtub Per Are you ready to sell

X. H. Goodenough, Chief Engineer of the State of Massachusetts Department of Health, announces that statistics of that state showed one bathtub for every 40.2 persons in the city of Boston in the year 1880. On March 12, 1921, he states that tubs have increased in number until there is now one tub for every 4.4 persons.

If this ratio of increase should be maintained there would be one bathtub for each person inside of five years.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG

Person By 1926 and install your share?

This indicates that the Sanitary Engineers of Boston have been earnestly striving since 1880 for sufficient bathtub installations. No doubt it has taken much persistent effort, good salesmanship, and attractive displays, but those Sanitary Engineers are now reaping their reward in many profitable sales and installations of bathtubs, and, probably, the usual accompanying plumbing enamelware. By the time the definite goal of a tub for every person is reached, a plentiful business in replacements will have been established.

Mfg. Company, Limited

Halifax Office:

McCURDY BLDG., HOLLIS ST.

Head Office:

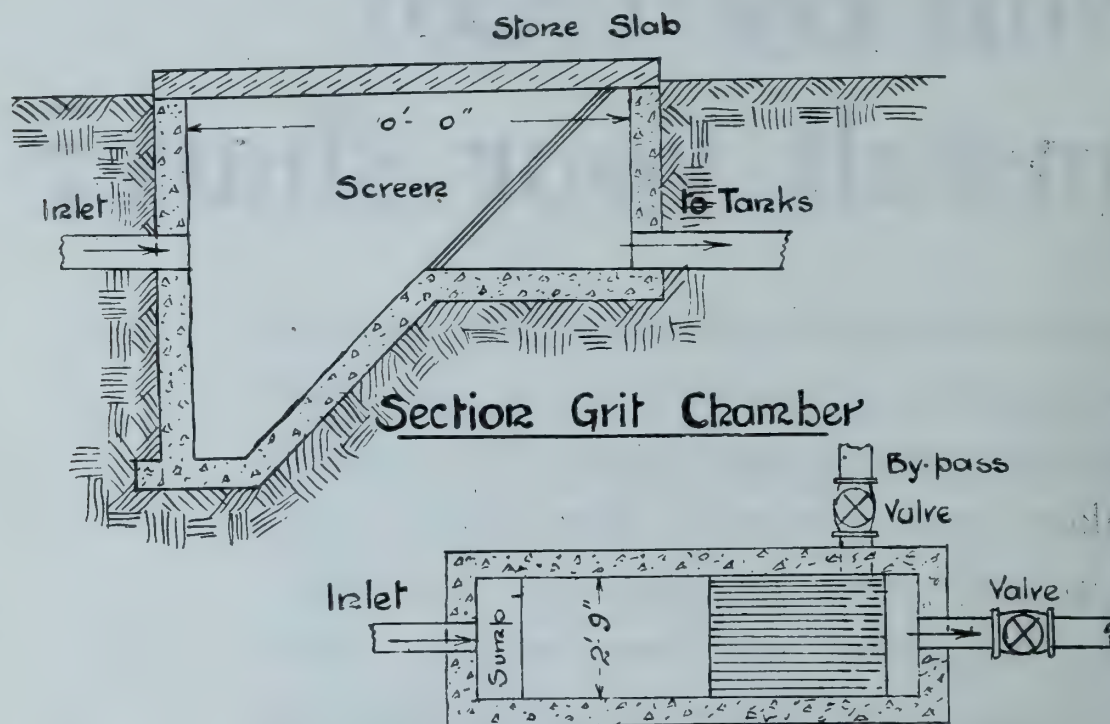
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:

234 BEAVER HALL HILL

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied



Plan Grit Chamber FIG. 36.

Article No. 28 of the Series—Illustration No. 36

(Continued from March 1 issue)

THE separation of the deposited suspended matter from the clarified tank effluent by the installing of two tanks constructed in one structure, produces a far better tank effluent, which is more readily oxidized by the final filtration area, also the anaerobic action of decomposing and liquifying the deposited sludge is much more easily and successfully accomplished as the velocity of the sewage is kept in the top story chamber, thus producing no disturbance except continued sludge settlement in the bottom story chamber.

Ample ventilation space should be taken care of in the bottom story tank so that the gases given off can find a free access to the air. This is accomplished by building one tank inside the other, connecting same for constructional reasons at the two ends, and leaving ample space between the sides of the outer and inside tank walls as shown in the illustration.

The storage capacity of the sludge digestion chamber should be designed for six months so that the tank only requires emptying twice in the year and this is accomplished by keeping the sludge outlet pipe six feet below the water level, with valve connections, and the head of the water in the tank forces the sludge up the pipe into the main delivery sludge pipe to the sludge beds (which should be laid at a grade of not less than 1 in 30), which discharge into earthen constructed beds well under-drained.

The sludge through the six months' storage has passed through the entire state of putrefaction and is free from all smell and on drying out (in 2 or 3 days according to the atmosphere) becomes a dry brown mould which has no manurial benefit whatever and can be utilized with perfect safety for filling in purposes. The sludge beds should be provided with valves and effluent drains as

shown in the above illustration (No. 36).

In order to design the correct size for the sludge digestion chamber it is always advisable, wherever possible, to obtain same from some other similar installation for accurate and reliable information, but the following formula, compiled from actual experience, gives approximate data sufficient for working purposes.

For separate sewage

$$C = 5.25 \frac{D V}{v} \quad \text{---} \quad 5.25 P D$$

For combined sewage

$$C = 10.5 \frac{D V}{v} \quad \text{---} \quad 10.5 P D$$

V—Flow of sewage in falls per capita per day; V—total daily flow from sewage; P—population served and expressed in thousands; D—days retention of

(Continued on page 56)

Heating and Ventilating

Combination Heating Systems

Fifth article of an important series, written exclusively for Sanitary Engineer
by N. A. Kearns

(Continued from March 1 issue.)

BEFORE we take up the subject of a complete installation of a combination warm-air and hot-water heating system, we wish to direct the reader's attention to some details of the hot-water part of the heating apparatus.

The scope of this article does not permit much consideration of the many details which go to make up a hot-water heating plant. There are such details as the length and height of circuits; the heating effect of radiators with different systems of piping; and also many other details, which are to be taken up later. For the time being we will confine our attention to those details which must be considered in connection with the combination system of heating.

Combination Boilers.

Combination boilers are, in general, divided into two main types, one of which is that when the heating rings are set in the combustion chamber only. The other type is built so that the lower ring of the boiler forms part of the fire pot.

The type first referred to is similar to that illustrated in the drawing which was presented with the first article of this series. In this type of heater, the fluctuations of the fire affect the heating surface much more than they do when the lower ring is a part of the fire pot. However, some types of boilers, when the fire pot ring is used, have much of their heating efficiency impaired because of an accumulation of ashes and dead coal, and it is for this reason that the heating trade usually prefers the "high-up" type.

Combination boilers of varying capacities are made, as a rule, by the manufacturers of warm air furnaces, and in designs suitable to the varying types of furnaces.

The capacities of these boilers vary with their diameters and numbers of sections. It is only by the judicious fitting of a suitable boiler to the furnace used that a proper balancing of the warm-air and hot-water system may be obtained.

The lower sections of any type of com-

bination boiler are usually of sufficient capacity to supply all of the direct radiation required when used in connection with a warm-air heating plant; still, at times, it may be necessary to provide heat by direct radiation in almost as great a proportion as by warm-air. In such a case it will be necessary to add sections to the combination boiler until the combination chamber may be almost entirely filled by the combination boiler.

Reduced Efficiency.

In providing for direct radiation, it should be remembered that the heating surfaces of the combination boiler reduce the efficiency of the warm-air part of the apparatus in direct proportion to the amount of heating effected by the direct radiation. While this is generally understood by the men in the trade, it is not always clear to those outside.

A case in point is that when some householder will ask a heating engineer to instal a combination boiler in an existing hot-air furnace, so that certain new rooms may be heated by direct radiation. Although the furnace may be rated at 16,000 cubic feet only, the owner often thinks that he can add another 16,000 cubic feet to his residence and still heat it with the same furnace. It is at times difficult to convince the owner that what he needs is a furnace with a capacity of 32,000 cubic feet before he can consider the installation of any direct radiation.

Combination boilers retard the fire by checking the draft. It is, therefore, necessary to see that the smoke pipe is connected with a flue much better than that which might serve for a warm-air furnace alone.

It is true that all flues should be as good as they may be built; nevertheless, it is a fact that a flue which might give reasonable service when connected with a stove or a warm-air furnace may prove to be wholly inadequate when connected to a hot-water boiler.

The cooling surfaces of the sections of a boiler cool the gases of combustion. With the cooling there is a falling off in the velocity of the gas escape to the flue. The cooler flue gases may prove

that there is not much heat escaping by way of the flue, and, on the other hand, the cooler gases may prove that the obstruction of the sections is dampening the fire below the proper rate of combustion. Therefore, heating engineers should see to it that while the heating sections of the boiler are arranged to extract as much of the heat as may be possible, these same sections will not too greatly retard the free circulation of the hot gases.

It is generally considered that one square foot of heating surface exposed to the fire will supply heat for 48 square feet of direct hot-water radiation.

The Radiators

In some cases the warm-air part of the system is used to heat only those rooms which are close to the furnace: the rooms farther away being heated entirely by direct radiation. Very often this is the only practicable arrangement.

The writer has found the best arrangement to be that whereby some effort is made to heat the entire building by warm air: the direct radiators being installed in the way of auxiliary heaters. In this system the radiators are installed in such locations as may be unfavorable to the free circulation. By this arrangement a much better balancing effect results than that which might be obtained when the two parts of the system are installed as separate and distinct units.

One of the greatest difficulties encountered in connection with the installation of combination systems is that of lack of balance. This is very noticeable when the furnace is very large in proportion to the combination boiler installed. In a case of this kind the water always boils out of the expansion tank when the furnace is being run to its warm-air capacity. Again, on the other hand, we may find a furnace far too small for the combination boiler installed; then we find that, no matter how hard the furnace is run, the water in the radiators will never get hot.

One of the simple ways of maintaining a balance is to proportion the radiating surface to the combination boiler and furnace, and then to set one or more additional radiators, which may be operated at such times when it is necessary to run the warm-air apparatus to its full capacity. During mild weather, the additional radiating surface is to be valved off.

Continued in next issue

QUESTIONS AND ANSWERS

Sanitary Engineer:

Would you kindly give me some information on cesspools. I am living in a country village thirteen miles out of Montreal. At present we have the well water, but the coming summer we are getting the water mains. There are no sewers, only a few cesspools, which seem of poor construction. Could you give me a sketch of a cesspool, giving the dimensions and details of construction, also how far it should be away from the house. I am working in the city and have not had much experience on cesspools. —N. Rudge, Valois, Quebec.

Cesspools should be so situated that the liquid leaching from them will not contaminate the water supply nor enter the house cellar. They must not be made air tight; they should be vented by way of a pipe which discharges at some safe distance from the house, say, 60 feet.

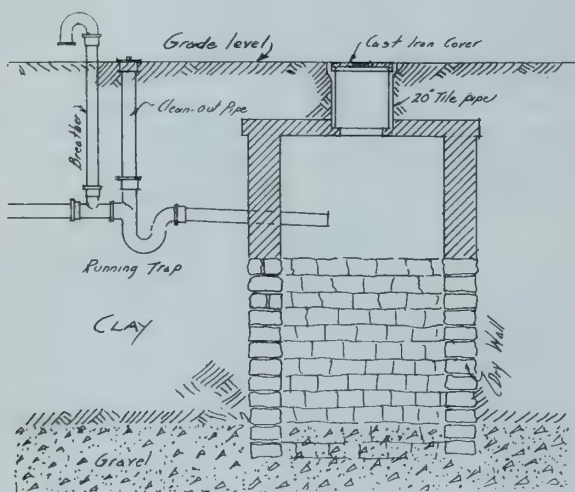
For some time after leaching cesspools are first built they will effect some filtration and purification of the house waste; but after a time, when the pores of the soil become clogged and saturated with sewage, very little filtration may be expected. With the clogging of the soil, decomposition will set in, thus gases will

leaching cesspool already described, except that the walls and floors of the tight type are built of water-proof concrete.

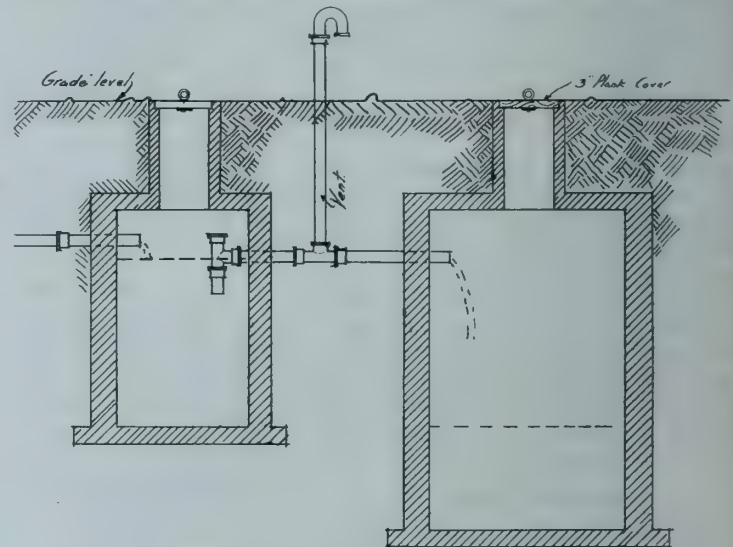
When the tight cesspool becomes filled with liquid, the liquid must be pumped into barrels, dumped on the land and plowed under.

A tight cesspool must be built with great care so that it will be perfectly water-tight. It should be located as far as may be possible from any dwelling and should be so built that it will be easily emptied and disinfected. Tight cesspools must be disinfected every time they are emptied.

The accompanying drawing of a tight cesspool shows about as good a type as may be devised. This cesspool consists of two compartments, one of which is a



LEACHING CESSPOOL



TIGHT CESSPOOL

Answer

The accompanying drawings illustrate two different types of cesspools; one of which is that known as the "leaching" cesspool, the other is that of the "tight" type.

The leaching cesspool is suitable only when it may be built in loose, sandy soil. This type of pool is built of stone without mortar in the joints. The stone walls extend down at least one foot into the gravel. The upper part of the walls may be built of brick or of concrete. The top is covered over by a concrete slab. A 20-inch glazed tile pipe serves for a manhole, which should be fitted with a perforated cast-iron cover. The perforations in the cover allow air to enter the tank.

The inlet pipe must extend far enough into the tank so that falling sewage may not close the crevices between the stones.

The running trap prevents gases from the cesspool entering the house drain. The breather serves to supply the house drainage system with fresh air. The running trap should have a clean out pipe fitted with a cap as shown on the drawings.

be generated and given off at the surface of the soil.

The use of leaching cesspools involves the danger of the sewage finding a passage by way of some subterranean channel to the source of drinking water. However, as we understand from your letter, a new system of water mains will bring the water from some considerable distance, so in the case of the particular installation referred to in your letter there will be no danger on this count.

The required size for a leaching cesspool varies with the condition of the ground wherein it is placed. An average size for the ordinary household is four feet square and five feet deep. These measurements refer only to that part of the cesspool built of open-jointed stonework.

Tight Cesspools

Where clayey soil is encountered or when it is not desired that the liquid from the cesspool should contaminate the surrounding earth, it is necessary to use a cesspool of the "tight" type.

The simplest form of tight cesspool is similar in construction to that of the

separation chamber, the other a liquid chamber.

The walls and floors of both chambers are built of waterproof concrete. The two chambers are connected by a 4-inch cast-iron overflow pipe.

It will be noted that the overflow pipe turns down into the liquid in the separation chamber. This is so that scum and floating solids may not find their way into the overflow pipe.

The vent pipe is connected to the overflow pipe and in this way vents both tanks. This vent pipe should be carried under the ground to some remote point, and there vented to the atmosphere.

With this type of cesspool, the separation of the solids and liquids facilitates the disposal of both. The liquid may be pumped out and used to irrigate the land. The solid matter may be removed and plowed into the ground as a fertilizer.

In size the intercepting chamber for the ordinary household should be about 4 feet square and 5 feet deep from the point of overflow. The secondary, or liquid chamber, should be about 6 feet

Continued on page 56

Spring Housecleaning the Plumbing Business

Elimination of Plumbers' Showrooms Will in Ten Years Turn Plumbing Business Over to General Contractors—Records Must Show Figure Facts.

Written exclusively for Sanitary Engineer, by KENNETH B. ALLISON

IN the spring-time youths' thoughts turn to love whilst more mature folks think of housecleaning.

Recently hereabouts the magnetic words, "Trade Extension," have caused one, on some days, to get all "het up" with enthusiasm and at other times to create despair in our minds because this same "Trade Extension" had not got started on its way towards rejuvenating or housecleaning the dark corners out of our business.

Window Trim

Speaking to those whose position of affluence has made them the proprietor of a plumbing and heating store on one of the main streets of any of our wide-awake cities in this country, might we suggest at this time something in the line of window trim.

If you can secure some of the latest patterns of drawn lead traps, place some half dozen of them proportionately across the floor of your show window. Next, use a length of lead waste pipe, but to give added effect in place of just laying same in the window, try to form one of those archaic Grecian curves amongst the traps. So as to familiarize the public eye with the great variety of

plete, and if the elements have not favored you be sure and sweep all the dust from the sidewalk against the window so as to secure an opaque effect, which having been done you can stand in your store with your thumbs in the arm-holes of your vest and wait for business that **WILL NOT COME.**

In a round-about way in the above paragraph I have tried to depict the show window of the average operating master plumber—the man who having a most valuable asset to his business in that show window is so careless as to allow it to present a most disagreeable picture to the passerby. The first essential to any well-dressed window must be cleanliness, because a window can only be well-dressed when the impression it creates is an agreeable one, and therefore dirty windows and floor with dust-covered examples of ancient plumbing are certainly not conducive to causing an agreeable thought in the minds of the public towards the proprietor as being an operator in modern sanitation. Whatever your thoughts are as to the class of goods you wish to display it is absolutely fixed that you cannot produce results on anything but attractiveness and cleanliness.

making this display any less attractive or cleanly than the show window of the finest departmental store.

Perhaps right here there will be any number of operators willing to argue against the necessity of a showroom or store for the proper conducting of a plumbing and heating business. There is much which can be said on both sides, as the man who with office and stock-room only, and having about him an



organization which creates business by personal contact and ambitious follow-up of inquiries, can conduct his business on a lower percentage of overhead than the man who has added a showroom, and so therefore a showroom operator must work towards the end of making the showroom create an additional volume of business for him by means of which he can lower his percentage of overhead. It is not too far back to remember some of the operators who in years gone by conducted quite elaborate showrooms and have since discontinued this feature. This fact furnishes an example that is stronger than theory as to the practicability of conducting a successful business without the aid of a showroom. On the other hand, if we were to consider this business as having no showroom operators in it, it is obvious that the volume of business done by the industry would be lessened because advertising, no matter how well-planned, misses one of the best assets, namely, personal or direct contact, when it does not link up with window display, as a finality in the culmination of a sale. To me it is an absolutely settled fact that this industry never having been advertisers, in the publication sense of the word, and depending solely on showrooms for their publicity have in recent years by their partial elimination of them considerably lowered their position by volume as a predominating industry. Let there be no showrooms whatsoever for the oper-



unthought-of items in a plumbing job, arrange quite a fair assortment of taps, valves and floor plates. A thirty-gallon boiler, a gas heater and other large-sized items tend to proportion your display, after which secure the largest fern from the house and centre it in the window. Your show window is now com-

The Showroom

Let us now look at your showroom. Have you made a display which shows variety and is not too crowded, or have you cluttered up the space with all the material you did not have another place for? You cannot create prospects by displaying out-of-date goods, nor by

ating master plumber and in ten years you will find the vast bulk of our business conducted by general contractors, who, regardless of what may be said in their favor, absolutely disregard the responsibility in sanitation which is demanded of the operator of to-day.

Housecleaning the Books

Coming back to our main thought, namely, housecleaning, it would be well for an operator to do some of this amongst his books or methods of keeping business records. There are two prime factors to the conducting of any successful business, one being the mechanical knowledge and the other the business knowledge, and these two prime factors must be in evidence before a



broadening policy for bigger business is ever even thought of. Have your records show that you know all the figure facts about your business. If to-day you will spend some money in this regard you will later on find it absolutely the best investment you have made.

So with your manner of keeping stock. There are any number of operators' shops which I have seen that are a disgrace to any industry. If you could realize the waste in loss of time to workmen caused by attempting to find fittings and clean stock amongst old junk, you would right now, in place of hollering about slack times, spend a few dollars for lumber and build proper fitting and stock bins so as to be prepared to save time and do more business when the business is there to be done. If more operators would properly lay out their stock they would be at this time of the year buying something for their needs this coming summer and would thereby be relieving the stock shortage which will probably occur this summer due to our present short-sighted, careless ways. Whitewash the walls, sweep the floors, sort out and put away the stock and have your place so that you do not have to be apologizing for its appearance.

The Personal Equation

Then there is the personal equation, or one's mental attitude, and in dealing with the housecleaning of this angle of it one does of necessity talk at least partially in the abstract. We do a certain portion of our business by direct sales, in which case we change an unknown buying factor into a tangible sale

through our appeal to the five senses, create interest and desire, and by making such appeals as we believe will have the most effect on the buyer in our favor, we close the sale. We may also receive business by indirect means through the agency of previous confidence created or good service rendered either to the buyer or someone known to the buyer. We may also create business through a combination of both of the foregoing.

Let it be known here that the writer is not attempting to teach salesmanship in comparison with those who have studied it to its last analysis as a science, but I do believe that salesmanship is a part of our fundamental education which we have whether we will it or not.

The child who makes more noise than other children accomplishes what it strives to do when it receives the attention of its elders. The lad who gets the job as office boy from a field of some

forty applicants must have conscientiously or unconscientiously done something to get the business. Call it personality, aggressiveness, or what you will, it is certainly part and parcel of salesmanship. So, therefore, if we believe that salesmanship, whether good or bad, is a part of our being, we ought not to be afraid to tackle the job of improving it, and it is essential that we do tackle it because no matter how well we may be able to produce from a mechanical standpoint, we must do a little shouting if we want to put our production efforts across and realize tangible results.

Salesmanship embodies the attributes of other efforts and we must school ourselves to those fundamentals in proper progression to procure the final answer. The failures in the result are due to some weakness in that line of progression and so we must daily take ourselves

Continued on page 56

NEW PLUMBING GOODS

THE "NEW KING" BOILER

A new hot water boiler has been placed on the market by Steel and Radiation, Ltd., Toronto, Ont., and is called the "New King." This boiler is said to have many new features and improvements not found in the older type. A positive circulation, with larger combustion chamber, correctly proportioned waterways, and an improved shaking apparatus have been embodied in this boiler, and have added appreciably, it is claimed, to its efficiency. This boiler has been designed for the heating of residences, apartments, banks, etc., and a number have already been installed and are giving satisfaction. Another feature claimed for it is the ease in assembling and time saved in installing. Particulars can be obtained from the company at 80 Adelaide St. W., Toronto, Ont.

THE "BREEZO" FAN

For Improving Hot Air Furnaces

The most common complaint regarding hot air heating is the faulty distribution of the heat to different rooms. A large volume of hot air will flow from the register in one room, while in another room the hot air flue may persistently act as a downcast, the air from the room flowing into the register instead of hot air flowing out. The reason for this behavior is easily seen when the construction of the furnace and the various heating flues is examined. It will usually be found that the cold air duct has a cross-section perhaps one-fourth that of the combined cross-sections of the hot-air

flues. The circulation in a hot-air heating system is produced, of course, by the tendency of the column of heated air in the hot air flues to rise. This causes the air pressure in the furnace casing or hot air chamber to fall slightly below the normal, and it is this suction that produces the inward flow from the cold air duct. This slight vacuum in the hot air chamber will often, when the furnace is first started and the flues are cold, draw cold air down one or more of the hot air flues. The more the flow of air to the furnace through the cold air duct is obstructed by inadequate size, the more certain and persistent will be the faulty distribution to the various rooms.

The "Breezo" fan has been designed to overcome the resistance to the flow of cold air to the furnace, and to insure uniform distribution to the different hot air flues. It operates on any lighting circuit, direct current 25 to 60 cycle alternating current, and gives six different speeds. It can be regulated to suit the temperature, and during mild weather it may not be necessary to operate the fan at all. The air is taken from the cellar and blown through the furnace, where it is heated up and distributed to every room in the house.

The register located centrally in the floor allows the cold air to be drawn off the floor line by means of the fan, back into the basement, where it is again heated and distributed. The "Breezo" fan is made in Canada by the Canadian Blower and Forge Co., Ltd., Kitchener, Ont. The necessary equipment is stated to be comparatively inexpensive and can be installed in most houses in less than a day's time.

Systematizing and Managing the Plumber's Office

Necessity of Safe Keeping of Records—Labor-Saving Methods—
Orderly Arrangement of Desk and Contents—Founded on Infor-
mation Secured by U. S. National Trade Extension Bureau

(Continued from March 1 issue)

ON the right-hand side we begin with Drawer No. 5. This should hold your Tickler File and other literature. Your Tickler File is a small box, large enough to hold a card 5 inches wide and 3 inches high. This box with 31 guide cards, one for each day of the month, and 12 more for each month of the year can be bought at your stationery store for a small amount. When used regularly and systematically it is a wonderful help. It relieves your mind of details, leaving it free to concentrate on the bigger things. To get the best results use it as follows:—

Using Tickler File

Carry in your pocket always a small scratch pad, no larger than 3 in. by 5 in. When you make an appointment for a certain day, jot it down on one of these sheets. Use a separate sheet for each different date. If you think of something you want to do on a certain date, jot it down. When you get back to the office get out your pad, tear off the sheets, and file them behind the guide corresponding to the date noted. Each morning take out the slips behind the card for that date, and you have before you the things to be attended on that day. Suppose you learn to-day that figures on the new office building to be erected must be in by the tenth. Make a note on your scratch pad to that effect, and when you get to the office file it behind the seventh. On the morning of the seventh it will automatically come to your attention without any effort on your part, and if you cannot attend to it on that day file it for the next day, and you can then forget it until tomorrow.

We know men who have a reputation with their wives for never forgetting birthdays, wedding anniversaries, etc., who keep it simply by having these dates always on file in their business tickler. When one anniversary passes the memo goes behind the month card, and later, on the first of the month, is filed for the proper date of that month.

Other valuable literature should always be kept together and looked over in your spare time. Very frequently a piece of literature does not interest you at the time you receive it. Reading it again you find it gives some information that exactly fits some problem you have on your mind. For instance, you may not be interested in some advertising article. Later on, you decide to do some advertising. In glancing back you find an article that gives you ideas on

what you have in mind. Then, too, frequent reading keeps up your interest in the betterment of your business.

In the back of your Daily Tickler File, mentioned previously, have a set of guide cards covering the various Departments of your business. Such as book-keeping, advertising, show-window, show-room, shop equipment, shop practice and various others that may occur to you. This same index can also be used for keeping track in the same way of articles in the trade papers.

Estimates

Drawer number 6 holds the folders covering jobs to be estimated upon. We cannot urge too strongly that a separate folder be used for each job. The smaller jobs can be kept in the envelope, using the folder for large ones. Put a partition across your drawer in the front, and leave a space of three or four inches where you can keep such small jobs as are being carried in envelopes. The folders can then lie flat in the back part of the drawer. Be very careful, as we said before, to keep the papers pertaining to each job in the proper folder. In this way they will not get mislaid, and when you get ready to do your figuring, you will have all the information available for that purpose. This drawer should not be a permanent file for estimates. All estimates and contracts should be kept in the safe after you have secured the contract.

Drawer number 7 should hold all of the suggestions that you get for advertising copy. By having a board or piece of cardboard nailed in the drawer on a slant, and coming within two or three inches of the front you will provide a space underneath, where your cuts can be kept. On top of the board in folders, put suggestions you receive in advertising. Sometimes in looking over your daily paper you will see some other merchants ad. on clothing, for example, that will make excellent copy for you with a little change. Later you can fit it to your business and bring results. Therefore save all ads. of this character, and when you get ready to do some advertising they will automatically come to your attention. Pay close attention to the national advertising campaigns being carried on by the large manufacturers in such papers as the Saturday Evening Post, Literary Digest, Collier's and other periodicals which have a large circulation. Clip them out and file them away. Sooner or later they will be useful. It will often be to your advantage to follow the appearance of such na-

tional advertising copy with your own copy, in your local paper. This will inform your local public that you can fill their needs for the article advertised, at a time most likely to get their attention.

Take care of all the advertising matter that is mailed you by manufacturers and supply houses, especially that which shows reproductions of cuts that they will send you for advertising purposes. All this material should not be put into one folder, however, where it is hard to locate, but should be divided according to the kind of fixture or to the firm who is sending it out. These folders can then be numbered and indexed in the back of the Tickler File as explained under Drawer number 5. Have a set of guide cards covering the various kinds of fixtures, and when you file away a piece of advertising matter note on the card behind the proper guide card the folder it is filed in. In this way when you decide to do some advertising in connection with lavatories, you simply turn to the Lavatory card in your "Tickler," and find, for instance, that in folder number 1 you have advertising suggestions regarding lavatories.

The top of your desk and the two slide boards can also be put to good use, other than originally intended for them. A glass top for your desk, about 20 x 30 inches, with a frame around it, can be bought at your stationer's or you can buy the molding at a planing mill and the piece of window glass and make one. Under this put your charts setting forth technical data. Take one of your plumbing and heating estimate sheets and enter opposite each of the items listed therein the selling price of a standard fixture, using the 100 per cent. list price or some other code figures. Place these also under your glass top, and when figuring a job or talking to a customer you have before you the price to be used. In doing this you always have this information right before you; the charts are kept free from dust and do not become wrinkled or marked up.

Pull out the left-hand slide and paste on it the prices and data as to pipe sizes, etc. On the right-hand side paste a chart showing how to figure profit and overhead.

Photos of Jobs Done

On top of your desk, during the day, there should be a ring binder containing photographs of various jobs that you have done. This should always be open, so that whenever a prospective customer

Continued on page 44

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

TO INSTAL LAVATORIES

Galt, Ont.—In connection with alterations to the city hall it has been decided to instal modern lavatories for both men and women.

EASTER PLUMBING DECORATIONS

Ross Belyea, 1375 Bathurst Street, Toronto, who recently branched out from the firm of Belyea Bros., had a very appropriate window dressed for the Easter season. The display was based on some ideas given by the Trade Extension Bureau. In one window was a pedestal lavatory and in the other was an apron sink. Both were unit displays with appropriate Easter decorations in each. These decorations consisted of showcards cut to the shape of Easter eggs and decorative paper of various colors forming a base which from a distance gave a pleasing and seasonable appearance.

MOOSE JAW WATERWORKS

Moose Jaw, Sask.—The report of the waterworks department for the year 1920 is now available and the result of the operations for the year show a deficit of \$20,609.47 as compared with an estimated deficit of \$19,280. The operating expenditure for the year was \$87,435.56. The interest and sinking fund charges amounted to \$83,250.36 or a total expenditure of \$170,685.92. The revenue for the year was \$150,076.45.

The total number of "live" services as at the first of the year was 2,281, and the number at the 31st December last was 2,410, an increase during the year of 129 consumers. The total quantity of water supplied to the city was 329,907,000 gallons as compared with 306,965,000 gallons for the year 1919.

HAMILTON OPPOSES LEGISLATION

Hamilton.—Inclining to the belief that an effort was being made to enact legislation without the matter first being given due publicity, telegrams were sent out by the Board of Control to all the larger centres of the province, calling on them to protest against a proposed amendment to the Public Health Act, which W. A. Crockett, M.P.P. for South Wentworth, is said to have introduced in the Ontario Legislature, and which, if it passes, will compel every city or town that has a sewage disposal plant

or waterworks system to furnish water to outlying districts.

WESTERN ONTARIO NEWS

Thomas Janes, 646 Emery St., London, Ont., wants prices on heating, plumbing and electrical work in connection with new \$5,000 residence to be erected shortly.

George R. Wood has opened a tin-smithing and plumbing repair shop on Water St., St. Marys.

Steadman Bros., of Petrolea, Ont., want prices at once on heating, plumbing and electrical work in connection with new \$5,500 bungalow to be erected.

Burt Ford, of Blenheim, Ont., is preparing plans for new \$5,000 bungalow and wants prices on heating and plumbing.

L. G. Bridgeman, Bank of Commerce Building, London, Ont., wants prices at once on hot water heating system in connection with remodelling of building for offices.

Noble and Rich, of London, Ont., are erecting a new \$5,000 dwelling in South London.

Architects Watt and Blackwell, Bank of Toronto Building, London, are preparing plans for a new wing to the Chatham General Hospital to cost \$100,000.

Owen Wright, Sombra, Ont., is preparing plans for a new \$5,000 bungalow and is interested immediately in prices of heating and plumbing.

Plans will be prepared shortly for a new public library at Tilbury, Ont., to cost \$15,000.

J. W. Oram, 671 Elias St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new \$5,000 residence.

W. J. Lashbrook, 293 Queen's avenue, London, Ont., has purchased the Belvedere Hotel and is preparing plans for a 100-room addition. Prices wanted on heating, plumbing and electrical equipment.

Richard Welsh, of Exeter, Ont., plans to erect new bungalow to cost \$5,500 and wants prices on plumbing, heating and electrical equipment.

G. Lewis, of Clifford, Ont., will completely remodel dwelling and instal new plumbing and heating. Prices wanted.

Plans are being prepared at Goderich, Ont., for a new sewer on the Huron Road.

James F. Naylor, Essex, Ont., wants prices immediately on heating, plumbing and electrical work for new \$5,500 bungalow.

John Heath, Listowel, Ont., wants prices immediately on plumbing, heating and electrical work for two new residences.

M. F. Zurbrigg, Listowel, Ont., has commenced work on new \$6,000 residence and wants prices on heating and plumbing.

The Mason & Risch Piano Co., 248 Dundas St., London, Ont., Clifford Gray manager, is spending \$20,000 on alterations and extension and wants prices on hot air heating and electrical work.

The Maitland Golf Club, at Goderich, Ont., is preparing plans for new \$10,000 clubhouse and is interested in prices of heating, plumbing and electrical work.

S. J. Cann, Exeter, Ont., is preparing plans for new \$5,500 bungalow and is interested in prices of heating, plumbing and electrical equipment.

Plans are to be prepared immediately for new \$10,000 school for S. S. 18, Plympton township, Daniel McKinley, R. R. 5, Forest, secretary.

John Tait, Glencoe, Ont., wants prices on heating, plumbing and electrical work in connection with new residence to be built this spring.

Tenders will be received until April 4 by R. R. Brett, Essex, Ont., for laying new 4, 6 and 8-inch water mains and for installing all water services required during the year.

Doings in Ottawa and District

DAY CLASSES FOR PLUMBING INSTRUCTION.

SO successful have the Ottawa Technical Night School plumbing classes been during the last six months that there is a move on foot now to organize day classes. The night classes have been under the supervision of S. Daughtry, chief plumbing inspector of the city, who has had associated with him Charles Fever, a popular journeyman plumber, who has had charge of the junior classes. The winter course concluded on the 24th of March, when a demonstration was given of the work done during the six months, and it was a most creditable display.

The matter of establishing day classes is being championed by W. C. Nicol, principal of the school, who feels that it would be very much to the benefit of the master plumbers if they were to co-operate by agreeing to set aside a certain portion of each day for their apprentices, when they might attend the classes without suffering the loss of remuneration for the time thus given over to study. Mr. Nicol has interviewed several of the leading plumbers, and has met with considerable encouragement.

* * *

CITIES FURNISHING WATER TO SUBURBS.

Neither the city of Ottawa nor the Board of Trade seems to be particularly concerned about a vigorous protest sent out by the Hamilton Board of Trade in connection with a bill now before the Ontario Legislature which will have the effect of compelling Ontario cities to furnish water to suburban points. Controller J. P. Balharrie, in charge of the Ottawa water works, stated that he did not view the proposed bill with any alarm. He said Ottawa was already furnishing water to points outside the city and could continue to do so as long as the outside places paid for their supply.

The controller quoted the following conditions under which water was furnished to outside points: "The city installed the water system and the users paid seven per cent. of the cost of installation. In addition meters were installed and a charge of 16 cents per thousand gallons was imposed on the basis of meter consumption."

* * *

STORM DRAIN NEEDED.

Recent floods in the west end section of the city caused by the overflowing of what is known as Cave Creek have raised the question again of how best to deal with the situation, and the city has requested the Nepean Township Council to provide a separate storm drain to divert the flood water from Cave Creek and carry it to the low-lying land north

of the residential section. Cave Creek is situated on a rise just northwest of the city limits, and when it overflows each spring, the water flows down on to the streets and sometimes into the cellars of a great many of the residents. While accurate estimates have not been prepared, it is thought the cost would be approximately \$50,000.

* * *

LAY SEWERS.

At a recent meeting of the city council, the board of works was authorized to lay nine-inch subsidiary sewers on Caroline street and Grange and Smirlie avenues.

\$1,202 IS COLLECTED IN PLUMBING PERMITS

Winnipeg.—The sum of \$1,202.25 was collected in permits and license fees for plumbing and sewers during the month of February, according to a report issued by the city plumbing and sewer department. There were 49 permits and 19 licenses issued during the month, and 424 inspections were made.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

TENDERS WANTED

Toronto, Ont.—W. T. Pember, 127 Yonge St., will receive tenders for all trades required for altering building into offices, etc.

* * *

Montreal, Que.—A. E. Laliberte, 7171 Sherbrooke St. W., N.D.G., will receive tenders for plumbing and heating required for two cottages costing \$9,000.

* * *

Toronto, Ont.—J. M. Walkey, 326 Shaw St., will receive tenders for plumbing and heating required for five bungalows costing from \$6,500 to \$8,500 each.

* * *

Toronto, Ont.—A. Johnson, 32 Burgess Ave., will receive tenders for all trades and material required for erection of residence costing \$6,000.

* * *

Dauphin, Man.—H. T. Paynton, architect, has plans and will receive tenders, no closing date set, for erection of residence estimated to cost \$15,000 for M. Worn.

* * *

Truro, N.S.—H. McDougall, secretary school board, will receive tenders until April 9 for general contract for erection of school estimated to cost \$100,000. Separate tenders will be received for plumbing and steam heating. Plans

Catalogues and Booklets

PEASE FOUNDRY CO.

New price lists have been issued by the Pease Foundry Co., Ltd., Brampton, Ont., and 118 King St. E., Toronto, and cover all lines made by this company including the Pease "Economy" and "Ideal" steam and hot water boilers and radiators, as well as the "Economy" and "Brampton" warm air furnaces and combination heaters. Other lines such as combination coils, registers, tinstock, furnace repairs, etc., are also listed. A copy of new lists will be sent to the trade upon request.

* * *

FIREPLACE FURNISHINGS

The Toronto Foundry Co., Toronto, Ont., have issued a catalog of fireplace furnishings. The lines illustrated in catalog comprise portable baskets for coal or wood fires in various styles and sizes, fire grates, andirons, iron fireplace linings, dampers, ash dumps, etc.

The Toronto Foundry Co. manufacture and carry a stock of other lines not listed in the catalog, such as bell traps, ventilating air brick castings, dish covers, soot doors, etc., and invite enquiries for all material not listed.

with E. D. Vernon, architect, 802 Prince St.

* * *

Montreal.—S. Marotto, 195 St. Catherine St. E., is awarded general contract for store and apartments costing \$27,000 for P. Gladianos, 145 Craig St. E., and will receive tenders for plumbing and heating.

CONTRACTS AWARDED

Vancouver.—Plumbing contract for bungalow costing \$5,000 for H. H. Boyle, 937 Oliver St., is awarded to W. R. Menzies & Co., 823 Cormorant St.

* * *

Vancouver, B.C.—Office building costing \$50,000 for Ceperley Rounsefell & Co., 739 Hastings St. W. Plumbing and heating contracts are placed with A. H. Mitchell & Co., 546 Richards St.

* * *

Ottawa, Ont.—Contract for altering residence into duplex at cost of \$6,000 for O'Connor Estate. Plumbing and heating contracts are awarded to Holloway & Son, 370 Somerset St.

* * *

Ottawa, Ont.—Heating and plumbing contracts for garage costing \$18,000 for Drs. Liggett & Graham, 227 Clemow Ave., are awarded to Capital Hardware

Co., 845 Bank St., and Williams Bros., Ottawa E., and J. B. Band & Co., Bank St.

* * *

Toronto, Ont.—Board of Education awarded following contracts: Balmy Beach School, heating and plumbing, at \$17,500, H. A. Wickett, 127 Front St. E.

* * *

London, Ont.—Heating and plumbing contracts for remodelment of building at cost of \$15,000 for London Loan Co., 220 Dundas St., are awarded to Noble & Rich, 237 Queens Ave.

* * *

Toronto, Ont.—Irving Wood & Co., 2907 Dundas St. W., will erect a warehouse at cost of \$20,000 and awarded plumbing and heating and electrical contracts to Robert Paterson, 907 Keele St., and Mr. Gibbons, c-o owners.

* * *

Toronto, Ont.—Contracts for two residences costing \$9,000 for E. M. Hoare, 37 Roxborough Drive, are: plumbing, J. Fraser, 83 Eaton Ave.; heating, Howard Furnace Co.

* * *

Toronto, Ont.—Plumbing contract for residence costing \$26,000 on Wells Hill is awarded to J. Maude, 19 Rowland Ave.

* * *

Three Rivers, Que.—Plumbing contract for three flats costing \$15,000 for L. O. Trottier, 120 Bonaventure St., are awarded to Frenette & Germain, 8 Ste. Marie St.

* * *

Toronto, Ont.—Additional contract for erection of residence costing \$30,000 on Forest Hill Rd. is: plumbing and heating, P. J. Miller, c-o F. S. Mallory, architect, 164 Bay St.

WATERWORKS, SEWAGE, ETC.

Hamilton, Ont.—Tenders will be called for construction of 400 lineal feet of 24-inch sanitary sewer in one street for city.

* * *

Hamilton, Ont.—Tenders will be called shortly for construction of pipe sewer in one street for city.

* * *

Longueuil, Que.—Contract for concrete sewer pipe for Inter-Municipal Sewer Commission is awarded to Independent Concrete Pipe Co., Woodstock, Ont. Tenders will be called for the laying of the pipe.

STEAM PUMP IS COSTLY

Markham, Ont.—In the near future Markham citizens will vote on a by-law to spend \$5,000 on the purchase of an auxiliary gasoline pump to be used in the waterworks department should anything go wrong with the Hydro power.

SYSTEMATIZING THE OFFICE

Continued from page 41

comes in, his attention is immediately attracted to it, and while you are figuring his work, or if he is waiting for you to come in, this silent salesman is working for you. You will find it to your advantage to take a day off if necessary and go through your desk and re-arrange it along the lines suggested above. It may appear to you that this is a day wasted. Far be it from such. The time you will save by having things where you can reach them in a short while will amount to far more than the day spent in arranging your desk. Once you have done this, however, the battle has only begun, because there is the constant temptation to either leave things on top of your desk, or put them in some place other than where they belong. You will have to fight this tendency constantly at first, but before long it becomes automatic to put the same thing in the same place each time you have finished with it.

After you have accomplished this you will be surprised at the ease with which you accomplish each task that you undertake. Your mind is free from the worry of looking for some important paper or some other desk tool with which you work, and it gives undivided attention to the matter you have in hand. In addition to this you have set an example for the balance of your force, which is the most important of all. If they see that you are accomplishing results through order and system they will be quick to follow the example you have set. In this way work will move through your entire office with system and dispatch, and there will be no lost motion.

We will now turn to the opposite or bookkeeper's side of the desk. We will begin with Drawer number 8, which is the wide, shallow drawer in the center of the desk, and corresponds with Drawer number 4 on opposite side. This should be arranged as described under Drawer number 4.

Drawer number 9 should contain a Desk Organizer, each division labeled according to the bookkeeper's needs.

Drawer number 10, which is the next drawer below, should have a supply of all the blank forms needed, such as credit memos, material and delivery tickets, workman orders, and invoices. These should be kept in a file similar to the one described for Drawer number 2.

Drawer number 11, should have a supply of blank notes, trade acceptances and blank checks. Divide the drawer into separate compartments for each form.

Drawer number 12, the top drawer on the left-hand side, should have a stock of premise report cards, workmen daily

time cards and orders for extra work. Divide this drawer also with compartments.

Drawer number 13 should contain workmen's reports that have not been charged on the books, and invoices from your supply house that are to be paid. These invoices should be filed away in a separate folder, and the date on which each invoice has to be paid to secure the cash discount should be plainly marked on the invoice. Your bookkeeper should look through this folder every morning, and take out the invoices for which check must be mailed that day. Careful attention to this is necessary that no cash discount be lost.

Drawer number 14 should contain the other bookkeeping supplies such as ledger sheets, etc.

The slide boards at the top of the desk should also be used as previously described. On these boards can be pasted the cost and selling prices on articles that are sold most frequently, such as pipe and fittings. These cost figures can be in code, so that if a stranger should chance to be in the room when they are in sight no information as to prices will be obtained by them. The best code is the 100 per cent. list which is double the cost. The selling price, of course, need not be in code.

The Daily Calendar pad on top of desk should be used by the bookkeeper to jot down things that are to be done each day. It operates on the same plan as the Daily Tickler described for the use of the contractor.

The books of account, such as Daily Job Record File, Journal Binder, and Ledger Binders are kept in the safe when not being used. A telephone memorandum pad should likewise be kept on top of the desk during the day, where information connected with telephone calls is jotted down. At night this pad should be put away in Drawer number 8.

On top of the desk should also be a wooden tray or wire basket. In this the contractor puts such papers as he wishes passed out to others in the office. The bookkeeper takes these papers, setting aside those for himself, and seeing that the others reach the proper party. At night this box will fit into Drawer number 9 on top of the Desk Organizer.

You will see that by this arrangement the minimum number of papers and appliances is on top of the desk during the day. At night when the day's work is finished the top of the desk is cleared of everything with the exception of the ink well, the telephone and desk calendar pad. If your office is within sight of the street, people passing by see an orderly, well kept office, and get the impression that you are a man of good business habits. The party cleaning up at night has an opportunity to dust everything thoroughly, and there is no excuse for an accumulation of dirt and dust, as is too frequently seen in many offices.



MADE
IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Quality Products

Annual Capacity
6000 Tons

Prompt Service



Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark
mean fittings made with
iron of high tensile strength
— proper proportions and
correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings
made of *Air Furnace Re-*
fined Iron, reamed and tap-
ped to gauge with perfect
threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited

GUELPH, CANADA

Halifax—GEO. D. HATFIELD, Bedford Chambers
St. John, N.B.—H. G. ROGERS, 147 Prince William St.

Representatives:

Winnipeg—HARRY F. MOULDEN, Confederation Life Building

Vancouver, B.C.—CYRIL AMES, Wilton Block

Montreal and Toronto—From Head Office, Guelph, Ont.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE outstanding features of the plumbing and steamfitting markets are the new lower prices on radiators and steam and hot water boilers, declines on furnaces and ranges and heating stoves, and a new lower list on steel pipe. Plain galvanized and corrugated sheets are quoted at lower prices and tin plate is slightly reduced. No changes have been made in compression work, lead products, range boilers, enamelled wares, closets or pipe fittings. Metal lath is reduced and soldering coppers are lower.

In ingot metals there is not much change but a better tone is evident and outside markets are

inclined to be firmer with lead and copper showing advances.

In the primary steel markets there is little change in prices and less disposition is shown to quote concessions. The steel ingot production shows a continued decline. Pig iron prices are lower, but quotations have been reduced, it is stated, in an effort to reduce surplus stocks.

Wholesalers report a small increase in business in some lines, but demand seems variable and improvements are not maintained. A better feeling is evident, however, and with the early renewal of building operations an increase of sales is expected.

MONTREAL

MONTREAL, March 29.—Commodities of the heavier type which show reductions are radiators and boilers. Fittings also are revised, showing slightly lower quotations and goods of a sundry line, such as soldering coppers and small pumps, are also quoted lower. Metal lath shows a decline of from 15 to 20 per cent. Wrought iron and steel pipe are unchanged, while coke and charcoal IX tin, show a small decline. Revision of prices on many lines of stoves, ranges and furnaces has also taken place, ranging from 5 per cent. to 10 per cent. on stoves, and 7½ per cent. on furnaces. Heaters also show reductions on many lines, while others have lightly advanced. Galvanized sheets are also lower, the reduction being uniform on all gauges in American and English standard sheets. Such lines as enamelled ware, soil pipe, oakum, range boilers, cotton waste, eavestrough and conductor pipe are unchanged in price, remaining fairly steady. Ingot metals have a slightly firmer tendency, with little actual change in quotations. There is still little activity shown on the many staple commodities, building not yet being in evidence.

Soldering Coppers Reduced

Montreal.

A slight reduction has been made in the prices of soldering coppers. Three-pound irons are now selling at 47 cents per pound, and 4 to 8 pound at 45 cents per pound.

Tin Plate Slightly Lower

Montreal.

A reduction of \$1 on the 112 sheet coke tin case, and 50 cents on the 56 sheet charcoal tin has been made, following being the revised prices: 20x28, 112, IX, \$24.50; 20x28x56, IX, \$13.20.

Small Pumps Lower

Montreal.

Lower prices are now quoted on the cistern or cottage pumps, following being

the new quotations on the different sizes of both pitcher and closed spouts:

Pumps—	Pitcher		Closed Spout
	No. 2	No. 3	
No. 2	3 10	3 40	4 00
No. 3	3 40	4 00	4 60
No. 4	4 05	4 60	5 00

Cook Stoves and Ranges Decline

Montreal.

Many lines of cook stoves and ranges, particularly of the better and higher priced stoves, have been reduced. The reduction amounts to approximately 10 per cent. Lower priced stoves and ranges are said to be unchanged under the revision. Heaters are also revised, and while slightly lower quotations are reached on some, others show a slight

advance. With high wages and the continued high freight rates, little further changes are expected. However, the present lowering is hoped to have a stimulating effect on sales, especially on bookings for next fall.

7½% Reduction in Furnaces

Montreal.

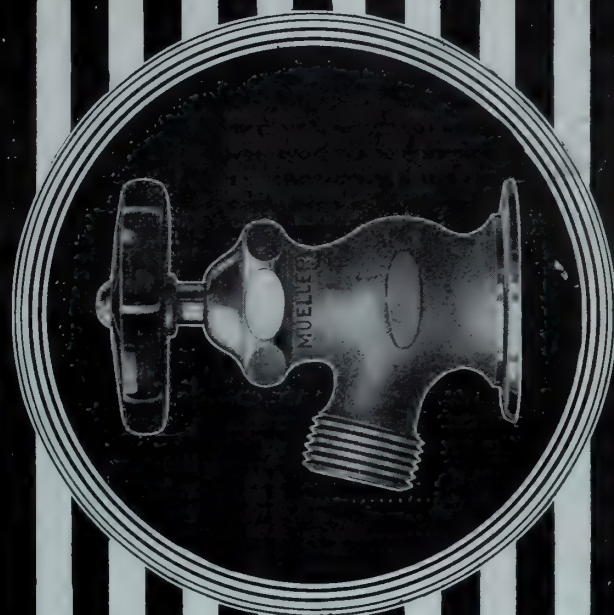
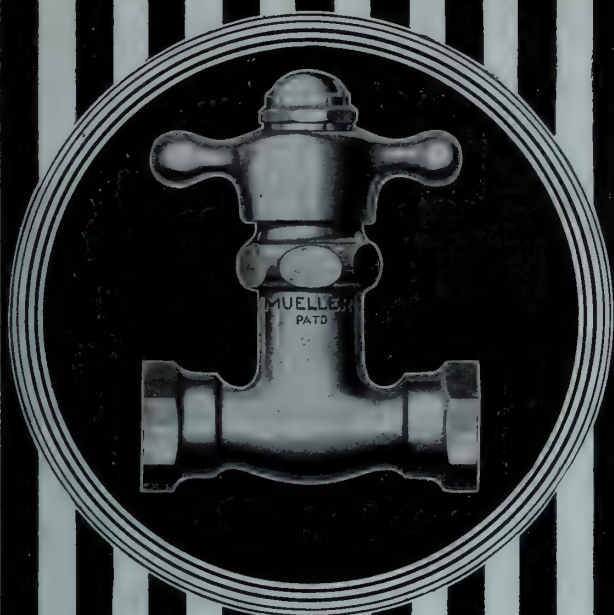
Accompanying the reduction in stoves, hot air furnaces also are lowered to the extent of 7½ per cent. The high productive and delivery costs that exist on furnaces are much the same as on stoves, and this reduction is looked for to have a tendency to more activity on fall bookings.

Lead Products Steady

Montreal.

With the exception of wire solder, which is reduced from 35 to 34 cents per pound, quotations are holding fairly steady on lead products. A firmer tendency has been shown in pig lead recently, and when this metal was at lowest level with the market very unsteady prices on the different lead products showed very little change other than small revisions. It is now felt that with perhaps a few further slight revisions prices will remain at present levels for some time. Following are the quotations:

Lead pipe, per 100 lbs.	12 60
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 18½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb	0 10½
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 26
Do., strictly, lb.	0 24



MUELLER Stop Cocks, Sill Cocks and Basin Cocks

The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install **MUELLER** goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

Write for catalog and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.



Do., commercial, lb.	0 21
Do., wiping, lb.	0 21½
Do., wire, lb.	0 34
Zinc sheets, casks	0 14
Do., broken lots	0 15½

Iron and Steel Steady

Montreal.

With regular declines noted on the United States markets in the different bar irons and steels, and reductions made at other Canadian sources, prices remain unchanged locally. Lower prices may be expected, however, considering these outside fields. The demand continues small, sorting shipments are being forwarded but orders for large quantities are still withheld. Stocks are comparatively light in the jobbers' warehouses, but these supplies can easily be replenished when the demand becomes heavier. Following are the present quotations:

Common bar iron, 100 lbs.	4 00
Refined iron	5 50
Iron finish machinery steel	4 05
Mild steel	4 00
Single reeled machinery steel	6 80
Band steel	4 00
Spring steel	6 00
Sleighshoe steel	4 00
Tire steel	4 20
Toe calk steel	4 90
Harrow tooth steel	4 15
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb.	0 23

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Waste Materials Unchanged

Montreal.

No change, either in prices or conditions of the market, are reported this week. Dealers have experienced a prolonged quiet period, and enquiries have brought little actual business. Nominal quotations are as follows on the different scrap metals and materials:

Dealer's Buying Prices.

Automobile tires	0 75
Yellow brass	0 06
Red brass	0 11
Light brass	0 04½
Scrap zinc	0 04
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton	13 00
Malleable scrap (ton)	15 00
Pipe scrap (ton)	8 50
Heavy melting steel	15 00
No. 2, busheling	5 00
Boiler plate	0 11
Stove plate (ton)	20 00
No. 1 machinery cast	25 00

Revision in Fittings

Montreal.

Many lines of fittings are revised, and quotations that run at 20 per cent. off are now 22½ per cent. off list prices. Other reductions are of the same raising of percentage off list prices. Ample stocks are stated to be carried by all jobbers, and manufacturers are carrying full bins of all kinds. The shortage at the latter end of last year is well overcome. Business continues fair on fittings, due, no doubt, to dealers' replenishing their stocks for spring demands when work in plumbing and repairing

will begin. Present quotations are the following:

Bushings, cast	22½%
Do., malleable	22½%
Flanges	20%
Plugs	20%
Flange Unions	7½%
Malleable Unions	35%
Dart Unions, black	20%
Do., galvanized	add 5%
Nipples, ½ to 4" close and short.	40%
Do., long	50%
Do., 4½ to 8" close and short.	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	Blk. Galv.
Class B	0 20 0 28
Class C	0 13 0 20
Add 17½%.	

New Pipe List

Montreal.

Following is list No. 49, under which iron and steel piping is now sold. This list was issued March 28 and shows a reduction in steel pipe. All sizes are now well stocked, and the demand continues fair.

Standard Butt-weld Pipe S/C

Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1½ in.	\$ 6 50	\$ 8 50	\$	\$
1¼ in.	4 89	6 99	5 91	8 01
1½ in.	4 89	6 99	5 91	8 01
1½ in.	6 50	8 03	7 95	9 48
1½ in.	7 99	10 06	9 95	12 02
1½ in.	11 82	14 88	14 71	17 77
1½ in.	15 99	20 13	19 90	24 04
1½ in.	19 11	24 06	23 79	28 74
2 in.	25 72	32 38	32 01	38 67
2½ in.	40 66	51 19	.....	.....
3 in.	53 17	66 94	.....	.....
3½ in.	67 62	84 18	.....	.....
4 in.	80 12	99 74	.....	.....

Standard Lap-weld Pipe S/C

Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$29 42	\$36 08	\$35 71	\$42 37
2½ in.	44 17	54 70	54 11	64 64
3 in.	57 76	71 53	70 76	84 53
3½ in.	69 46	86 02	85 10	100 66
4 in.	82 30	101 92	100 83	120 45
4½ in.	95 89	1 20	1 30	1 54
5 in.	1 12	1 40	1 52	1 80
6 in.	1 45	1 81	1 97	2 33
7 in.	1 89	2 37	2 53	3 01
8L in.	1 99	2 49	2 66	3 16
8 in.	2 29	2 87	3 07	3 64
9 in.	2 74	3 43	3 67	4 36
10L in.	2 54	3 18	3 41	4 05
10 in.	3 28	4 10	4 39	5 21

Galvanized Sheets Lower

Montreal.

Reductions on both U.S. standard and English standard galvanized sheets are made this week. The U.S. sheets are 50 cents per 100 pounds lower on all gauges, while in English sheets, Queen's Head is 75 cents and Fleur-de-Lis 50 cents lower throughout. Quotations on plates, black and galvanized sheets are nominal and little uniformity exists on prices quoted by the different jobbers. Conditions are not yet on a settled basis on the Pittsburgh markets, and operations are curtailed in many sources, production still much below normal times, and the export and home demand almost at a standstill. Following are quotations:

PLATES—	
10 gauge	6 25
12 gauge	6 30
14 gauge	6 45
16 gauge	6 55
BLACK SHEETS—	
10 gauge	6 50
12 gauge	6 55
14 gauge	6 60

16 gauge	6 80
18-20 gauge	7 95
22-24 gauge	8 00
26 gauge	8 10
28 gauge	8 20
Sheets 36 in. wide, 10c. per 100 lbs. extra.	

GALVANIZED SHEETS—

U.S. Standard—

10½ gauge	10 25
28 gauge	9 75
26 gauge	9 50
22 and 24 gauge	9 35
20 gauge	9 15
18 gauge	9 15
16 gauge	9 00
Queen's Head Fleur-de-lis	
28 gauge	10 75
26 gauge	10 50
24 gauge	9 90
22 gauge	9 55
18 and 20 gauge	8 85

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Plumbers' Oakum Unchanged

Montreal.

Plumbers' oakum registers no change in price locally, selling at \$4.50 per 50-pound bale. Broken quantities are one cent per pound extra.

Radiators and Boilers Lower

Montreal.

Quotations on radiators and boilers have been lowered on practically all lines. The reduction is not uniform, but different styles and sizes are affected more than others, approximately from 5 to 20 per cent. being the decline. Enquiries and contracts are very encouraging, but the actual business offering is still small. In Quebec province, building operations are not as promising as in other provinces, and this has a direct bearing on the sale of heating materials. This decline is the second since the beginning of the year, and with productive costs and high freight rates on heavy materials of this nature showing no reduction, manufacturers are inclined to state that their share of the lowering of prices is being borne, and further reductions are unlikely for some little time. Following are the present quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.16; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 48% for hot water and 49% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 55% off list.

Square or sectional hot water or steam boilers, 15-in., 5%.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in. to 36-in., 5% off list.

Square or sectional steam boilers, 19-in. to 36-in., 5%. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10%.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Soil Pipe Prices Steady

Montreal.

Soil pipe or fittings undergo no change in prices and quotations are holding steady for some time past. The sales continue backward, the reason, as in many other commodities of plumbers'

materials, laid at the door of building activity. Following are the prices of pipe and fittings:

SOIL PIPE (medium and extra heavy)—
2, 3, 10%; 5 and 6-inch, 15% discount.
4-inch, 20% discount.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Enamelled Ware Remains Quiet

Montreal.

Business in the different lines of enamelled ware continues quiet, sales still being small and filling only actual requirements. With the open weather continuing, allowing excavations and outside working, trade should now brisk up to a certain extent. No change has been made in prices, and present prices have held for some time now. Following are quotations:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	
16 x 24..... 1 only 2 only 3 only	
18 x 30..... \$6 00 \$5 92 \$5 84	
20 x 30..... 6 96 6 88 6 80	
22 x 30..... 7 92 7 84 7 76	
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories—	
17x19" Apron F139 or P4045	12 24
18x24" Apron F154 or P3845 or P3847	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345	10 08

No Change in Closets

Montreal.

There has been no change in closets, neither in prices nor activity in sales. As in the case of other enamelled ware, closets are only moving in small orders of present day needs. Quotations are the following:

Closet, standard outfit	\$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 60
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Slight Improvement in Range Boilers

Montreal.

The movement of range boilers has shown a slight improvement in the last week or two, although other commodities in plumbing materials are reported more or less quiet. The electric welded boiler is now stocked by jobbers and is said to be of a better quality than was previously offered to the trade. Sales of these are not large, dealers still ordering the riveted boiler in preference. Following are the quotations on the riveted boilers in the different sizes, showing no changes.

RANGE BOILERS—	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	
35-gallon	15 00		

40-gallon	17 00	19 00
52-gallon	24 00	
66-gallon	32 00	
82-gallon	42 00	
100-gallon	50 00	
120-gallon	60 00	

Waste Sales Improved

Montreal.

With an easier tendency on other cotton products and lower prices on many other lines cotton waste is still holding unchanged. Business has shown a decided improvement this month, which may be accountable to a certain extent for maintenance of prices. Following are present quotations:

Cream, Polishing	Q 22
WHITE	
XXX	0 18½
XX	0 17½
X	0 16½
XLGR	0 16½
Empire	0 15½
X Press	0 13½
6X Special	0 12

COLORED	
Fancy	0 15
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

WOOL PACKING	
Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 20
Colored Cotton	0 15
Above lines subject to trade discount for quantity.	

Eavestrough, Etc., Unchanged

Montreal.

There has been no change made in conductor pipe, eavestrough or conductor elbow quotations, and trough and piping are still selling at 50-10 per cent. off list prices and elbows 50 per cent. off. Although bookings have been exceedingly small, an increased volume of business is expected with the season opening early. Stocks are ample to meet any hurried demand that might come to hand when the weather permits troughing. Following are the list prices with discounts:

EAVETROUGH—	
O.G. Square Bead—	
Per 100 ft.	
8 in.	15 90
10 in.	17 70
12 in.	21 20
O.G. Round, and Half Round—	
8 in.	16 90
10 in.	18 70
12 in.	22 20
Discount 50/10% off list.	

CONDUCTOR PIPE—	
Per 100 Ft.	
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00
Discount 50/10% off.	

CONDUCTOR ELBOWS—	
Plain round or round corrugated—	
2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00
Discount 50% off.	

Nominal Quotations on Corrugated Sheets

Montreal.

The list prices on corrugated sheets are shown unchanged. With the lighter gauges, however, prices are by no means uniform, and continue to range from \$7.50 to \$8.78 net per 100 square feet.

The 28 and 26 gauges are practically the only weights moving at present. Following are the list prices:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00

Less 7½%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Metal Lath Reduced

Montreal.

Lower prices are now quoted on metal lath, both painted and galvanized. The reduction is from 15 to 20 per cent. on the different weights. Following are the new prices:

METAL LATH.	
Painted—	
26 gauge, sq. yd.	0 35
24 gauge, sq. yd.	0 39
23 gauge, sq. yd.	0 45
Galvanized, 11c per sq. yd. extra.	
Discount, 10%.	

Compression Goods Steady

Montreal.

There has been no change made in quotations on the different lines of compression goods shown below. Some lines of brass valves are reported easier, but prices are not as yet affected. A general sorting business continues, this having kept up fairly well during the early months of this season. Following are present prices:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	34%
Roundway stop and waste cocks, standard	34%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10/7%

Slow Movement in Boiler Tubes

Montreal.

There have been no further changes made in the prices of boiler tubes since the reduction of a few weeks ago, with a slow movement experienced. Following are the quotations:

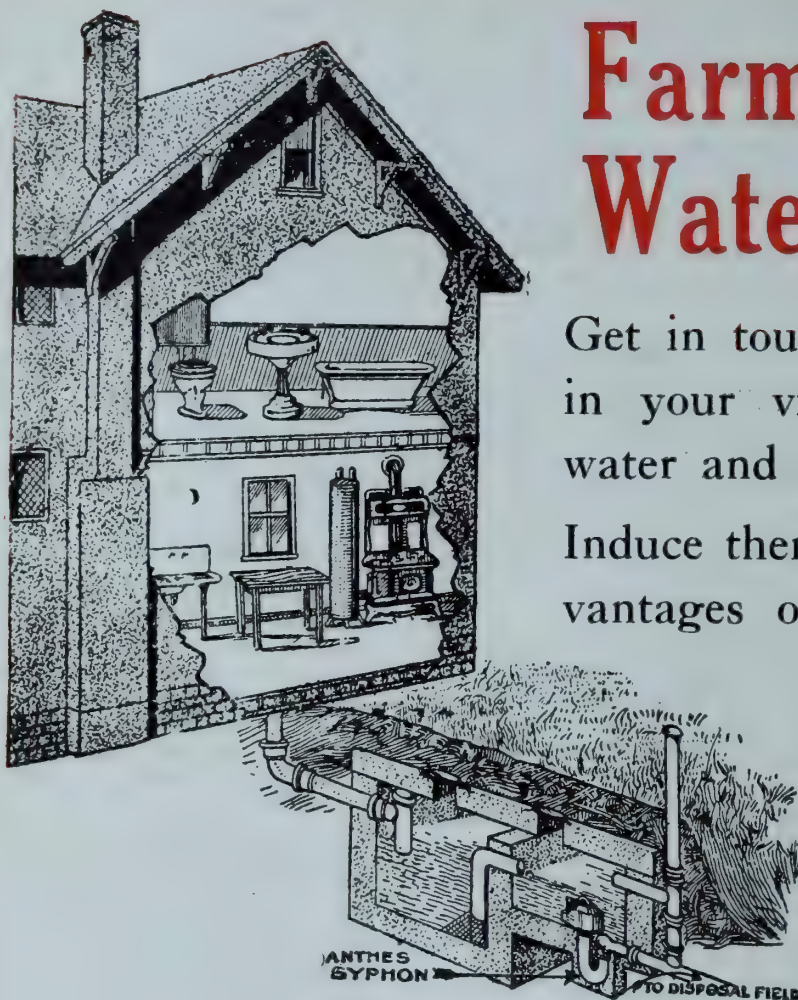
BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	
1½ inch	27 25	
2 inch	26 25	
2½ inch	29 75	27 00
3 inch	29 25	25 50
3½ inch	33 00	28 50
4 inch	44 75	31 50
	49 25	40 00
	63 50	43 50
	85 00	55 50

Little Change in Ingot Metals

Montreal.

There is very little change in ingot metals. However, some are showing a slightly firmer tendency if anything. Tin and copper has made slight advances on the London market, while on the U.S. markets they are fairly steady. With the exception of aluminum, which is a little firmer with the quotation advanced one-half cent, all other metals remain unchanged in price.

TIN—The New York market is some-



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what firmer without much actual business being done. In London this metal has been unsettled but closed with slightly higher quotations than last week at £157 for spot standard and £163 for straights. The local price is unchanged at 36½ cents.

COPPER—London and New York both show slight advances all week. There is a report that several American smelters have closed, this evidently stiffening the market. With a small demand, present local prices are 18 cents for electro and 17¼ cents for casting.

LEAD—Lead in London also was lower at the beginning of the week, stiffening toward the end. The United States market shows very little change. There has

been a very small demand locally, and the quotation remains steady at 6½ cents.

SPELTER—Early in the week this metal showed an easier tendency but closed firmer in London. East St. Louis has held fairly steady at \$4.70. Local price is unchanged at 8½ cents.

ANTIMONY—The price on antimony is a little weaker in New York, with a small demand. A few local enquiries have come to hand, but actual business has not yet come to hand. Local price unchanged at 7¼ cents.

ALUMINUM—This metal continues quiet, and very little business is offering. Local quotation is slightly firmer at 35 cents.

TORONTO

TORONTO, March 30.—Some important price changes are recorded in prices of plumbing and steamfitting supplies this week. Radiation and hot water and steam boilers have been reduced in price. Steel pipe is down again about three points, making the second list within a month. Furnaces show a small reduction and some lines of ranges and heaters have been revised and are showing lower quotations. Among other lines reduced in price are soldering coppers, some lines of solder, plumbers' oakum, black and galvanized sheets, and some makes of wrenches.

Wares and closets are holding unchanged and no alterations are made in compression goods, lead pipe, eavestrough, etc.

Business is still quiet, but a very slight improvement in some lines is reported and with the approach of the spring there is a more optimistic feeling.

Soldering Coppers Reduced

Toronto.

A reduction of about 10 per cent. has been made in the price of soldering coppers and the new base price for 4 pounds is 44 cents per pound.

Steel Pipe Again Reduced

Toronto.

Another reduction has been made in the price of steel pipe, making the second decline within the month. The decrease amounts to three points on steel pipe and wrought is again unaffected. There is little increase of business reported in pipe, and the buying is still largely from hand to mouth. Wholesalers' stocks are in better shape now and the shortages have been mostly overcome. With the new building operations soon commencing it is expected that more activity will soon be shown and sales will become larger. On U. S. markets it is reported that the independent pipe mills are now making concessions of from 2½ to 5 per cent. from list and the Industrial Board level has hitherto been fairly well adhered to. The new pipe list became effective March 29 and is as follows:

Price List No. 50. March 28th, 1921
Standard Butt Weld Pipe S/C

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$ 6 50	\$ 8 50	\$ 8 01	\$ 8 01
2½ in.	4 89	6 99	5 91	8 01
3 in.	4 89	6 99	5 91	8 01
3½ in.	6 50	8 03	7 95	9 48
4 in.	7 99	10 06	9 95	12 02

1 in.	11 82	14 88	14 71	17 77
1¼ in.	15 99	20 13	19 90	24 04
1½ in.	19 11	24 06	23 79	28 74
2 in.	25 72	32 38	32 01	38 67
2½ in.	40 66	51 19		
3 in.	53 17	66 94		
3½ in.	67 62	84 18		
4 in.	80 12	99 74		

Standard Lapweld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$29 42	\$36 08	\$35 71	\$42 37
2½ in.	44 17	54 70	54 11	64 64
3 in.	57 76	71 53	70 76	84 53
3½ in.	69 46	86 02	85 10	101 66
4 in.	82 30	101 92	100 83	120 45
4½ in.	95 89	1 20	1 30	1 54
5 in.	1 12	1 40	1 52	1 80
6 in.	1 45	1 81	1 97	2 33
7 in.	1 89	2 37	2 53	3 01
8 in.	1 99	2 49	2 66	3 16
8 L in.	2 29	2 87	3 07	3 64
9 in.	2 74	3 43	3 67	4 36
10 L in.	2 54	3 18	3 41	4 05
10 in.	3 28	4 10	4 39	5 21

Pipe Fittings Steady

Toronto.

No changes are made in pipe fittings, which are held at recent declines. A steady demand is reported, with but little increase in sales. Stocks are in good shape and the following are the current quotations:

Cast iron fittings	15%
Plugs, cast	25%
Do., solid	10%
Do., countersunk	Net list
Bushings	25%
Unions, ¼ in. to 2 in.	35%
Do., ½ in., 2½ in. to 4 in.	30%
Dart-Union, blk., ¼ in. to 2 in.	20%
Do., ½ in., 2½ in. to 4 in.	8%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4½" and larger	30%

Long, 4" and under	50%
Do., 4½" and larger	40%
Running thread, 4" and under	20%
Do., 4½" and larger	
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4½" and larger	Net

MALLEABLE FITTINGS

Class A	0 60	0 75
Class B	0 25	0 35
Class C	0 16	0 25

Soil Pipe Holding

Toronto.

Very little increase of activity is noticed yet in soil pipe or fittings but an improvement is looked for with the building season again starting. Stocks are said to be in good shape and no changes have been made in quotations, which are as follows:

2 and 3 inch, 10%.	
4 inch, 20%.	
5 and 6 inch, 15%.	
8 inch, add 5 %.	
FITTINGS—	
2 to 6 inch fittings, 40%.	
8 inch fittings, plus 5%.	

No Change in Closets

Toronto.

Some wholesalers report a steady sale for closets without any noticeable improvement in demand. This should come later on with the new construction starting. Supplies are stated to be in fair shape and quotations remain as follows:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

No Change in Wares

Toronto.

Business shows little change in enamelled wares, but with the renewal of building operations there is a better feeling prevailing and it is expected that the coming month will see an improvement in demand. Stocks are said to be in good shape and prices show no change. The following are current quotations:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16 25
Do., do., 5½ ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Ranges and Heaters Revised

Toronto.

Prices have been revised on some lines of ranges and heaters. The reduction

amounts to about 10 per cent. on the ranges reduced, but the declines do not apply to all lines, and the revision on heaters shows some lines slightly lower, others unchanged and a few have had to be advanced slightly in price. Present sales are small but with the fall booking about to commence it is hoped that the reductions will stimulate buying.

Hot Air Furnaces Lower

Toronto.

A reduction has been made on warm air furnaces and some makes are approximately 7½ per cent. lower in price. Sales are not large at the present time, but it is expected that lower quotations will have an effect on the fall bookings.

Hot Water Boilers Lower

Toronto.

Prices have been revised on steam and hot water heaters and tank heaters and are lower. The declines are varied on the different lines but approximate 10 per cent.

Radiation is Lower

Toronto.

Effective March 17 a change took place in the price of radiators, making a reduction in prices of from 10 to 12 per cent. The new discount on the standard window radiators is 48 per cent. off list for hot water and 49 per cent. for steam. There is a better feeling in the trade and an early increase of activity is expected. The following are the new quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 48% for hot water and 49% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Boiler Tubes Quiet

Toronto.

Very little change is shown in boiler tubes and sales are reported to be very light with demand scrappy. Prices are nominally unchanged, although some lower quotations have been recorded.

	Per 100 feet	
1 inch	\$28 00	\$.....
1¼ inch	30 00	.....
1½ inch	32 00	.....
1¾ inch	33 00	.....
2 inch	35 00	28 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	46 00
4 inch	92 00	60 00

Corrugated Sheets Move Better

Toronto.

A slight increase in business is noticed in corrugated sheets, but it is recognized that it is still early for much activity in this line and during the next month sales will likely improve. Quotations are holding at the recent changes on the lighter gauges which are the only ones that show much of a demand. Prices are as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7½%.	

Lighter than 24 gauge and wider than 27 in.,
75c per square extra.

Westcott Wrenches Lower

Toronto.

A slight reduction has been made in the price of Westcott wrenches and these are now about 5 per cent. cheaper.

Conductor Pipe Holding

Toronto.

With the season advancing there is a little better demand for conductor pipe and eavestrough. Stocks appear to be in good shape and no shortages are likely this season. Prices are unchanged and are the following:

TROUGH (Eave)			
O. G., Square Bead and half round.		Size in girth:	
Per 100 ft.		Per 100 ft.	
8-in.....	\$15 90	15-in.....	\$28 30
10-in.....	17 70	18-in.....	36 50
12-in.....	21 20		
Less 50/10 per cent.			
PIPE (Conductor)			
Plain, round or corrugated.			
Per 100 ft. in 10 ft. lengths.			
2 in., in 10-ft. lengths, list			\$18 40
3 in., in 10-ft. lengths, list			22 30
4 in., in 10-ft. lengths, list			29 60
5 in., in 10-ft. lengths, list			40 00
6 in., in 10-ft. lengths, list			49 00
Less 50/10%.			

Corrugated Elbows Quiet

Toronto.

No changes have been made in the price of conductor elbows, which remain at the list made early in the present year. Sales show very little change, but should be increasing during the coming month. quotations are the following:

2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 50%.	

Some Solders Reduced

Toronto.

Slight reductions have been recorded in solder prices, but quotations on lead pipe and sheets remain unchanged and the outside primary lead markets show a firmer tone with advances made by the large producers in the U.S. A small increase of business is reported, but the present movement is by no means active. The present quotations are as follows:

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 34
Do., 40-60	0 26½
Do., 50-50	0 29
Do., strictly, lb.	0 24
Do., commercial, lb.	0 22
Do., guaranteed, lb.	0 27
Do., wiping, lb.	0 22
Zinc sheets, per lb.	0 16
Calking lead	0 08 0 09

Variable Demand for Bars

Toronto.

The amount of business in iron and steel shows a little variation during the closing days of the month from what it did at the beginning, but it has been spasmodic, with an improvement followed by a falling off. In the United States markets pig iron production is being further curtailed all the time, and out of 166 merchant furnaces only 27

are now operating and several of these are expected to blow out in the near future. This curtailment is bound to have a sustaining influence upon price of iron, it is believed, although some time may elapse before stocks are absorbed. Quotations show no change from the last report and are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	\$ 4 50
Do., ¼ in. and heavier	4 00
Common bar iron, 3-16 in. and lighter	4 50
Do., ¼ in. and heavier	4 00
Angle base	4 50
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 00
Spring steel	12 75
Mining drill steel	28 00
Crucible cast steel	35 00
Sheet cast steel	35 00
Sleighshoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Range Boilers Slightly Improve

Toronto.

A little better demand is reported for range boilers, though sales appear to be for present needs. Some lower quotations are reported in a few quarters on the 30 gallon standard size, and are \$11.50 for the electric weld and \$12.50 for the riveted boiler. Other jobbers are holding to the previous quotations, which are as follows:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$13 00	\$15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Compression Work Holding

Toronto.

No further changes are noted in compression work and prices remain as last report. Sales continue fairly light, though an improvement over last month is recorded. The majority of the sales are of a sorting variety and little stocks are being held.

Oakum Quotations Lower

Toronto.

In small quantities 11 to 12 cents is being quoted for plumbers' oakum, but lower prices are in effect for larger quantities and 50-pound bales are quoted at \$4.

Cotton Waste Unchanged

Toronto.

Prices are holding unchanged on cotton waste, and the demand is variable with little improvement.

Brass and Copper Sheets

Toronto.

There has been no further change in brass or copper prices in sheets, rods or tubing and quotations remain as follows. The tendency is firmer in primary markets.

BRASS—	
Sheets, base, per lb.	\$0 29
Rods, base, per pound	0 26
Tubing, base, per lb.	0 36
COPPER—	
Rods, base, per pound	0 34
Soft sheets, plain, 16-oz. and heavier, lb.	0 34
Do., plain tinned	0 40
Do., polished and tinned	0 45
Tubing	0 39

Lead and Oil Prices

Toronto.

No changes have taken place in white lead in oil prices or in red lead prices. In less than ton lots the quotation for white lead is \$15.30 per cwt., and dry red lead \$15. Single barrels of raw linseed oil are quoted at 87 cents per gallon and boiled at 90 cents. Turpentine is now selling at 95 cents for single barrels, 15 cents per gallon extra being charged for smaller quantities with containers charged extra.

Lower Quotations on Sheets

Toronto.

A slight increase in the demand for sheets is reported by some wholesalers, but the improvement is not a steady one. The regular spring buying has not yet been felt and it is evident that many dealers are just sorting up and carrying sufficient stocks for immediate needs only. Wholesalers' stocks are ample for present demands and much of the stock on hand is reported to have been bought at higher prices than the present quotations. Some lower quotations have been made but do not appear to have drawn much extra business, and buyers are playing a waiting policy. In the U. S. the sheet mills are operating at a lower rate, although at a better one than earlier in the year when many of the independent mills were closed down. The quotations here are lower and the following are general:

BLACK SHEETS

14 gauge	5 80	6 80
16 gauge	5 90	5 90
18-20 gauge	6 25	7 25
22-24 gauge	6 30	7 30
26 gauge	6 35	7 35
28 gauge	6 50	7 50

PLATES

10 gauge	5 75	6 20
12 gauge	5 80	6 25
14 gauge	5 85	6 30
16 gauge	5 95	6 40

GALVANIZED SHEETS

Premier and Apollo

10½ oz.	8 90	9 80
U.S. 28 gauge	8 50	9 50
U.S. 26 gauge	8 20	9 20
22 and 24 gauge	8 05	9 05
18 and 20 gauge	7 90	8 90
16 gauge	7 75	8 75
12 and 14 gauge	7 70	8 70

Irregular Ingot Market

Toronto.

Business in ingot metals is reported to be irregular again, and the demand is very "scrappy." Prices generally have been maintained, and in outside markets a firmer tone is shown both in copper and lead. With the absence of quotations from London, where markets have been closed on account of holidays, the American markets have been quiet.

TIN.—There has been a steady up-trend on London markets in tin and the total gain for the week has been about £12. New York markets gained \$2 during the week and consumers are showing more interest, although the orders placed are small. Prices locally remain unchanged and are 38 cents.

COPPER.—The copper market is firmer but there is little business doing. Advances of one-quarter cent a pound

have been made on United States markets, due, it is stated, to the closing down of several copper mines and the contemplated curtailment and shut-down of some of the large producers, together with an increased demand for copper and brass products. Prices also advanced £2 on London markets. Quotations here remain at 18 cents for casting copper.

LEAD.—A firmer tone is reported in the lead market, but there is little movement. The output is reported as being curtailed, and the larger producers have advanced their prices, making the first advance in lead prices since August 12, 1920. London markets show an upturn although the demand has dwindled. Prices locally are unchanged at \$6.

SPELTER.—This metal has been the weakest of all this week though prices are holding unchanged. Few sales are reported and the market is dull and sagging. Quotations here remain at \$7.25.

ANTIMONY.—This metal is quiet with demand negligible. Heavy arrivals on United States markets led to shading

of prices. Quotations here are still 8 to 9 cents.

ALUMINUM.—A revival in the automotive industry is leading to an increase of activity in this metal. Prices on outside markets remain nominally unchanged.

No Demand for Scrap

Toronto.

There is little change in the waste material market. Buying is on the light side and no immediate change is looked for. With the steel mills operating at a low rate there is little call for scrap, and the same applies to non-ferrous metals. The consumers of scrap have stayed out of the market except for domestic requirements. Inquiries have been few and sales of small quantities. While a slight improvement in the price of virgin metals is giving the market a better tone, expectations that business would soon improve have not been realized.

WINNIPEG

WINNIPEG, March 30.—There is a tendency towards lower prices on many plumbing and steamfitting goods, and a number of reductions are recorded during the past few days. Lower quotations are given on black and galvanized sheets, soldering coppers, hot water and steam boilers and radiation. Prices are withdrawn on Fuller work and compression goods are reduced. Revisions have been made in iron and steel prices and quotations are lower. Wrought iron pipe is being sold at the list price issued March 2nd. Range boilers are unchanged and are moving but slowly. Cotton waste remains at recent declines. Business generally remains fairly quiet, but with the milder weather at hand the trade is hopeful of an early improvement.

Range Boilers Quiet

Winnipeg.

Prices on range boilers are unchanged, with very little movement. A few small orders are being received, but they are for present requirements. Prices now quoted are:

30 gal., \$15.00; 35 gal., \$16.50; 40 gal., \$19.50; 52 gal., \$26.00; 66 gal., \$35.00; 82 gal., \$45.00; 100 gal., \$57.00; 120 gal., \$70.00.

Cotton Waste Unchanged

Winnipeg.

No further change is made in the price of cotton waste. A decline was made just recently and an improvement is noted on the sales and business has improved during the last two weeks. Prices are as given below:

Cream, polishing, 24½¢ per lb. White XXX Extra, 21¢ per lb.; XX Grand, 20¢; XLGR, 19¢; X Empire, 17½¢; X Press, 16¢. Colored Fancy, 17½¢ per lb.; Lion, 16¢; Standard, 14½¢; Popular J., 13¢; Keen, 11½¢.

Sheets Are Reduced

Winnipeg.

Lower quotations are given this week on black and galvanized sheets. Prices of sheets are governed to a great extent at present by stocks on hand, and even lower prices may be expected in the near future, it is believed. Present quotations are as follows:

	Black.	Galv'd.
10 gauge, per 100 lbs.	7 30	....
12 gauge, per 100 lbs.	7 30	....
14 gauge, per 100 lbs.	7 35	....
16 gauge, per 100 lbs.	7 45	9 50
18 gauge, per 100 lbs.	7 95	9 65
20 gauge, per 100 lbs.	7 95	9 65
22 gauge, per 100 lbs.	8 00	9 80
24 gauge, per 100 lbs.	8 00	9 80
26 gauge, per 100 lbs.	8 05	9 95
28 gauge, per 100 lbs.	8 40	11 55
10½ oz., gal.	....	10 95

Soldering Coppers Reduced

Winnipeg.

The prices have again been lowered on soldering coppers and are as follows:

1 lb., 55½¢ per lb.; 1½ lb., 51½¢; 2 lb., 48¢; 2½ lb., 47¢; 3 lb., 45¢; 3½ lb., 45¢; 4 lb., and larger, 44¢.

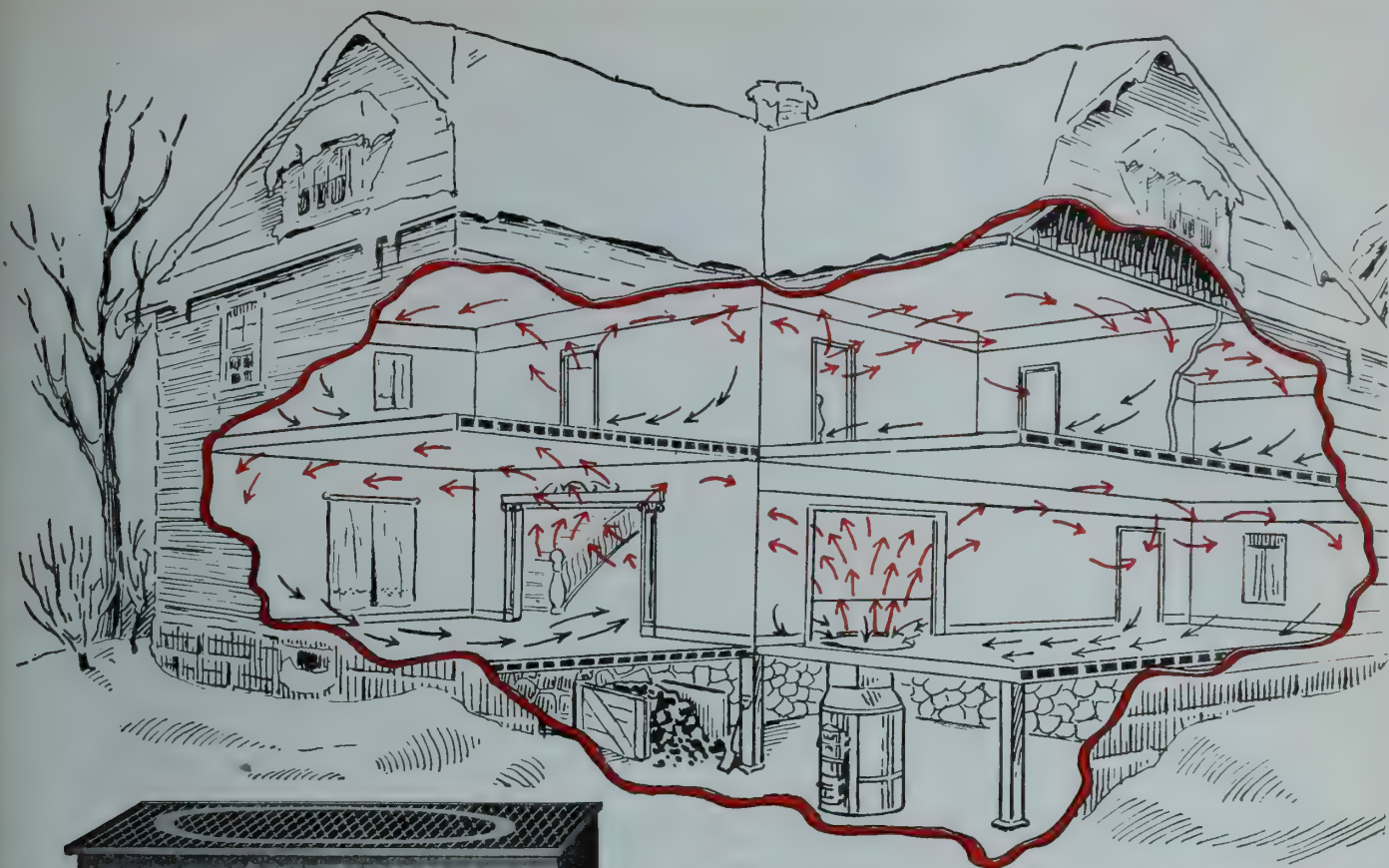
Bar Iron and Steel Lower

Winnipeg.

The prices have been reduced from 30 to 50 cents per hundredweight on bar iron and steel and new quotations are as follows:

BAR IRON.—Rounds and squares, 3-16, ¼ and 5-16 in., \$7 base; rounds and squares, ¾ to 2 in., and flats up to and including 1 x 4 in., \$5.65 base; rounds and squares, over 2 in., and up to and including 2½ in., and flats over 1 x 4 in. up to 6 in. wide, \$6.40 base; rounds over 2½ in. to 6 in., \$6.90 base; band steel, \$5.95 base.

SOFT OR MILD STEEL.—Rounds and squares, 3-16, ¼ and 5-16 in., \$7 base; rounds and squares, ¾ to 2 in., and flats up to and including 1 x 4 in., \$5.95 base; over 2 in. up to and including 2½ in., and flats over 1 x 4 in. up to 6 in., \$6.40 base; rounds over 2½ in. to 6 in., \$6.90 base.



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*Presents a golden opportunity
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We are going to appoint one exclusive dealer in each town and city to handle the "New Idea" Pipeless Furnace and we are going to back those dealers up with advertising in newspapers and farm papers that will create a big consumer demand. Now is the time for you to investigate this wonderful pipeless heating plant.

The "New Idea" Pipeless Furnace is easy to instal—prevents tearing up floors and walls—uses little fuel and will last a lifetime.

Descriptive pamphlet sent upon request. Write for it to-day—it means real money for you.

The Hamilton Stove & Heater Co., Limited

Successors to

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Hamilton, Ontario

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Seventy-five years successful manufacturing



Wrot Iron Pipe Unchanged

Winnipeg.

The price remains unchanged for wrought iron pipe and the list which became effective on March 2 is being used. With stocks now in fairly good shape, the scarcity on some sizes being well overcome, lower prices are looked for in some quarters. The prices now in effect, however, are quoted below:

Size ins.	BLACK PIPE F.O.B.					
	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.	
	[Add to Winnipeg price.]					
3/4	6.21	0.30	0.20	0.17	0.11	
1	5.67	0.53	0.34	0.30	0.19	
1 1/4	5.85	0.70	0.45	0.40	0.26	
1 1/2	7.88	1.05	0.67	0.59	0.38	
2	9.72	1.40	0.90	0.79	0.51	
2 1/2	14.40	2.08	1.34	1.17	0.75	
3	19.44	2.80	1.80	1.57	1.00	
3 1/2	23.27	3.35	2.15	1.88	1.21	
4	31.32	4.50	2.88	2.52	1.62	
4 1/2	50.76	7.18	4.60	4.02	2.68	
5	66.60	9.42	6.03	5.28	3.39	
6	83.70	11.25	7.20	6.30	4.05	
7	99.90	12.33	8.53	7.46	4.80	
8	118.80	15.61	10.04	8.75	5.62	
9	138.60	18.12	11.60	10.15	6.25	
10	180.00	23.45	15.00	13.14	8.44	
12	262.80	29.09	18.62	16.28	10.46	
14	276.30	31.25	20.00	17.50	11.25	
16	380.70	42.40	26.96	23.59	15.16	
18	353.70	40.00	25.60	22.40	14.40	

GALVANIZED PIPE

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
3/4	8.69	0.30	0.20	0.17	0.11
1	8.01	0.53	0.34	0.30	0.19
1 1/4	8.19	0.70	0.45	0.40	0.26
1 1/2	9.54	1.05	0.67	0.59	0.38
2	12.02	1.40	0.90	0.79	0.51
2 1/2	17.78	2.08	1.34	1.17	0.75
3	24.03	2.80	1.80	1.57	1.00
3 1/2	28.80	3.35	2.15	1.88	1.21
4	38.70	4.50	2.88	2.52	1.62
4 1/2	63.00	7.18	4.60	4.02	2.68
5	81.90	9.42	6.03	5.28	3.39
6	103.05	11.25	7.20	6.30	4.05
7	122.40	12.33	8.53	7.46	4.80
8	146.70	15.61	10.04	8.75	5.62
9	171.00	18.12	11.60	10.15	6.25
10	221.40	23.45	15.00	13.14	8.44
12	299.09	29.09	18.62	16.28	10.46
14	31.25	20.00	17.50	11.25	

Sheet Lead Is Down

Winnipeg.

A reduction has been made in prices of sheet lead and it is quoted at 10 cents per pound for full rolls and 11 cents per pound for less than rolls.

Boilers and Radiators Reduced

Winnipeg.

Business is quiet on boilers and radiators and few sales are being made. The prices, however, have been revised and are approximately 5 per cent. lower. Quotations are as follows:

Steam Boilers	Net	List
Hot Water Boilers	51%	
Radiators, Steam	43%	
Radiators, Water	42%	
Hospital Radiators, Steam	40%	
Do., Water	39%	

No Change in Soil Pipe

Winnipeg.

Soil pipe and fittings are held unchanged at the prices set last month and sales are slow at this time of the year. Quotations are as follows:

CAST IRON SOIL PIPE—2 and 3 in., 5% off;	
4 in., 17 1/2% off; 5 and 6 in., 10% off; 8 in., 10% advance.	
SOIL PIPE FITTINGS—2 to 6 in., 35% off;	
8 in., 10% advance.	

PRACTICAL HELPS FOR TINSMITHS

Continued from page 33

set per space. This, of course, requires a perfectly laid out drawing showing all strake lines in their true form. Few workmen do this, preferring rather to lift the patterns direct from the skeleton as above outlined. Even in factories where these boats are made in large numbers, a wooden form is first made to better determine the fullness of body and fineness of lines and curves. When this is properly shaped, the strake patterns are lifted direct from this templet. Hence we see it requires considerable study and the watching of points to make a good boat.

SEWAGE DISPOSAL FOR SMALL COMMUNITIES

Continued from page 36

sludge; C—effective capacity of digestion chamber in cubic feet.

The sedimentation or first story tank should be designed for velocity of 1.75 feet per inch with 2 to 3 hours retention.

The clarified tank effluent is collected in a dosing chamber (which feeds the filtration area by means of an automatic syphon the size and capacity of which is governed by the number of people the installation is designed for), same can discharge into land drains for land treatment or into distributing pipes for final treatment on artificial filter beds which will be fully described in the section dealing with land filtration.

The Imhoff installation, due to the depth of the tank, is more costly to instal than either the septic or settling tank, but if fully and well designed it will prove much the better way of treating the sewage from large buildings besides having a modern disposal works which will give and produce better results, proving an excellent investment.

HOUSECLEANING YOUR BUSINESS

Continued from page 40

to task and plug up the weak spots in yesterday's efforts so as to avoid them in to-day's endeavors. First, one must know their business and that means for the plumbing operator that he cannot be content with mechanical knowledge alone but must know the figure facts of costs, etc. Then, one must have confidence in that ability and also in their ability to complete their part of the transaction. Then, one must create the confidence that they have to the buyer and having, to put it in slang, had their "bluff" called by being given the business one must produce according to form so that they strengthen the first confidence given and secure future business on something other than price competition, namely, service.

The Operator Who Commences His Own Business

There will always be more workers on the lower scales of remuneration than

the higher ones. Have you not often noticed that others, or perhaps it has occurred with you, that the operator starts in business because his previous employer seemed to have a lot added on between his cost and his selling price. The new operator thinks he can show the world the last thing in efficiency by working to a lower market. He is perhaps urged on by a would-be customer with a supposedly friendly interest. He gets a lot of business and then finds later on that there must be a lot of holes for his profit to slip through that he originally overlooked. He raises the ante and immediately business drops off a little because another man has been induced to take the plunge and fill his shoes as a budding operator. Now do not suppose that I am trying to advocate high prices because I do not, and if this industry can by housecleaning and improvements in its methods without the impairment of its service and responsibilities, or if any individual operator can by the same means transact his business on say a percentage of 10 per cent. for overhead and profit, then I say that this is the mark that we must strive for because business competition creates success by the "survival of the fittest" route.

The trouble occurs when so many only think or guess they can and then because someone said 10 per cent. they all like sheep fall into line without knowing for sure what they can or cannot do, and without figuring the result. Do not guess in business to-day because when you fall others are taken with you.

Essential it is then that one must houseclean all angles of their business, and essential it is that by improved methods and better efficiency one must market their product or service at as low a price as will stand up under competition but in so doing one must protect their creditors (merchandise, labor, expense, old age, your family and the public), which in substance means that one must make a profit for we are only passing the buck to posterity to pay for the short-changing you are doing to-day.

QUESTIONS AND ANSWERS

Continued from page 38

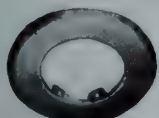
square and 8 feet deep from overflow to bottom of chamber.

In describing these cesspools, we do not wish to be understood as advocating the cesspool system of sewage disposal. We do not advocate the use of cesspools when it is possible to use the septic tank system.

In the December 15th (1920) issue of Sanitary Engineer there appeared a description of two types of septic tanks. One of the tanks there described would be suitable for the condition of clayey soil mentioned in your letter. We refer to the combination "septic" and aeration tank indicated by Figs. 1, 2, 2, 4, and 5 in the December 15th issue of Sanitary Engineer.

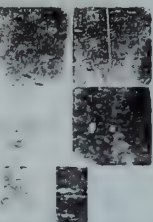
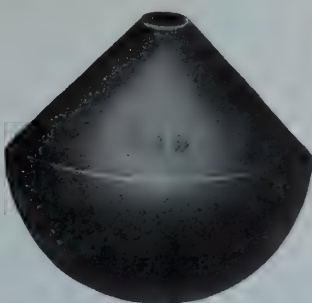


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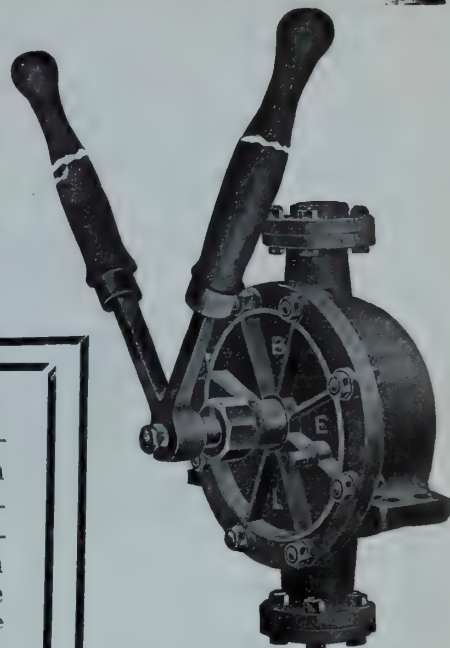


No. 17

**B. & C.
Floor and
Ceiling
Plates**



**Cone Top
Tank Bulbs**



"Ubel" Semi-Rotary Pump

B. & C. Floor and Ceiling Plates

Sizes $\frac{1}{4}$ " to 4" are available in stock at Toronto. These neat, attractive plates are made of superior, cold-rolled steel, heavily copper-plated, and finished in nickel-plate. The narrow pattern makes them most effective for twin connection or one pipe work. These are the most popular plates offered the Canadian trade.

Cone Top Tank Bulbs

These are splendidly made of the first quality rubber. The top is heavily reinforced; the bottom is soft and pliable. The sizes in stock are $2\frac{1}{2}$ ", $2\frac{5}{8}$ ", $2\frac{3}{4}$ " and 3". These are available in stock at Toronto.

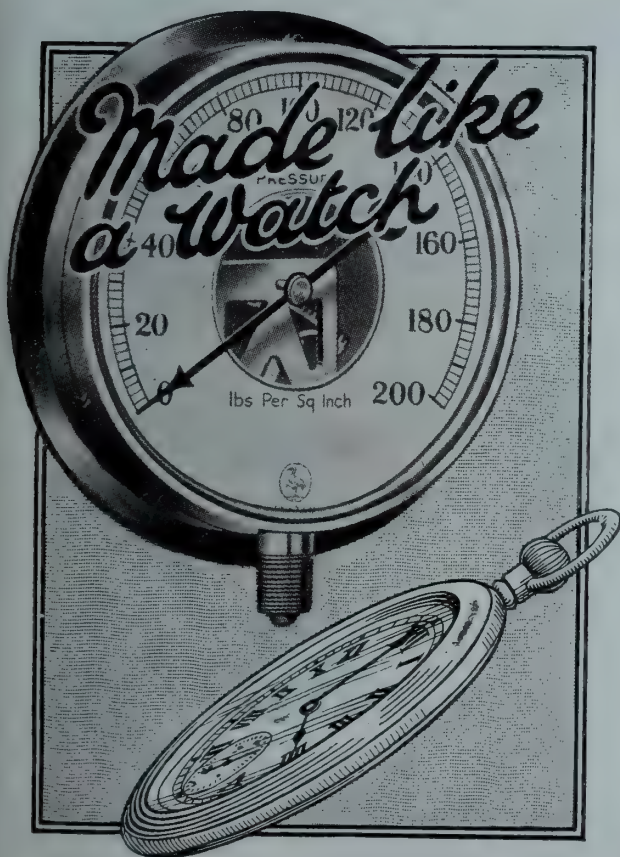
"Ubel" Semi-Rotary Pumps

An English Semi-Rotary pump, with all the careful, conscientious workmanship of the British workman. The quality is high but the prices are competitive. A strictly "Made-in-England" product, but available in stock at Toronto.

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"UBEL" Pressure and Vacuum Gauges are perfectly designed on scientific principles and manufactured only from the very best materials by highly skilled workers. By specialization on this particular work, "UBEL" can offer Vacuum and Pressure Gauges of the highest standard at competitive prices.

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FIVE WORKS
HEAD OFFICE
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MANCHESTER
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No 10

Rules For Use of Warm Air Pipes

Number of Important Rules to Be Kept in Mind in Installing Warm Air Heaters

THESE rules, as issued by the National Warm Air Heating and Ventilating Association, are as follows:

1. Each warm air pipe should have an upward pitch from the heater of not less than one inch per foot.

2. The pitch of all warm air pipes should be alike. Equalize by bringing down lower into the cellar the boxes of the shorter warm air pipes.

3. When a warm air pipe in cellar is more than fifteen feet long, add one-half inch to the diameter of such pipe for each five feet or part thereof, of length in excess of fifteen feet (or, when odd one-half inch sizes of pipe are not used), add one inch to diameter of pipe for each ten feet, or part thereof, of length in excess of fifteen feet. In such case, the capacity of a riser should be increased to equal the capacity of the cellar pipe.

4. An offset in the riser pipe is equivalent to an addition to the length of the cellar pipe, and should be counted in when measuring the total length of the cellar pipe.

5. All warm air pipes in cellar or basement should be covered with non-heat-conducting pipe covering. Not less than ten pound sheathing is recommended.

6. All warm air risers should be carried up in inside partitions, wherever possible.

7. In cases where it is absolutely necessary to carry up warm air risers in outer walls, such risers should be so thoroughly protected as to be completely insulated.

8. In using double wall pipe the capacity should not be reduced.

9. A separate compartment should be made in the crown or bonnet of the surface for each extra long or winding air pipe, thus insuring a positive supply of warm air to the pipe.

10. Never use smaller than eight inch pipe.

11. When warm air pipes are taken out of the top of the bonnet of the heater, the tops of all the elbows should be on a level, so that an equal current of air can fill all the pipes.

Note: As a twelve inch elbow is so much higher than an eight inch elbow, in order to have both pipes work properly, the top of the eight-inch elbow should be as high as the top of the twelve inch. This applies to all pipes taken from the top of the heater. The same rule applies as nearly as possible where pipes are taken from the side of the bonnet.

12. Rooms on the sides of the house exposed to prevailing winds should always have one size larger pipes and registers than the same sized rooms on the sides of the house not so exposed.

13. Rooms having bay windows and considerably more than the average glass surface on the northern side of the house should have two sizes larger warm air pipes and registers than the same sized rooms without this extra glass surface on the southern side.

14. Where warm air pipes pass through the wall in the cellar, an air space around the pipes should always be left. Never mason a pipe in solid that passes through the wall in the cellar, as the wall chills the pipe and makes that pipe almost worthless.

15. All warm air pipes should have

dampers close to the heater, so that heat from them can be regulated.

16. All rising pipes in partitions or walls should be enlarged or boxed out where cellar pipes enter them. This is necessary to avoid friction and insure a rapid flow of air.

17. All rising warm air pipes running from second to third floor should always have damper above the register on second floor. Rising pipes should be wrapped with asbestos and studs lined with tin, using wire or iron lath to plaster on.

18. The friction from abrupt bends or acute angles in warm air pipes must be avoided.

19. Fireplaces in rooms having flues 12x12 inches, which is equal to one hundred and forty-four square inches, or 8x12 inches, which is equal to ninety-six square inches, or 8x8 inches, which is equal to sixty-four square inches, will in cold or windy weather pull off more air from a room than the warm air pipes can deliver. In such cases, use sheet iron throat pieces with sliding damper in fireplace flue. The ventilation can thus be regulated as desired.

20. In heating a room on the cold side of the house, or a room having a large amount of glass surface, place one register in the floor as near as possible to the furnace and place a cold air register face in the floor under or near a window and connect this cold air register by means of a separate duct to the bottom of casing, thus removing the cold air out of the room and at the same time providing a flow of warm air into the room.

21. The heater must be attached to a chimney flue of correct construction, one that will furnish sufficient draft to insure a good combustion of fuel.

22. The fresh air supply to the heater must be adequate.

Pipe Capacity—Relative Sizes of Opening Areas

In heating and ventilation, water or air distribution it is often necessary for feeders to be taken from the main header, or vice versa. The combined cross sectional areas of the branches should equal that of the main line. Areas of circles vary as the squares of their diameters.

1—Three equal branches leading from one main. 2—Two feeders in ratio of 3:2 leading from main. 3—Two elongated sections leading from round main. Suppose main pipe D in cases 1 and 2 to be 15 ins. diameter. Area of large opening equals 15 inches squared $\times .7854 = 176.715$ sq. in.

1—Area of one small pipe equals $176.715 \div 3 = 58.905$ sq. in.

Diameter (d) equals 8.66 inches.

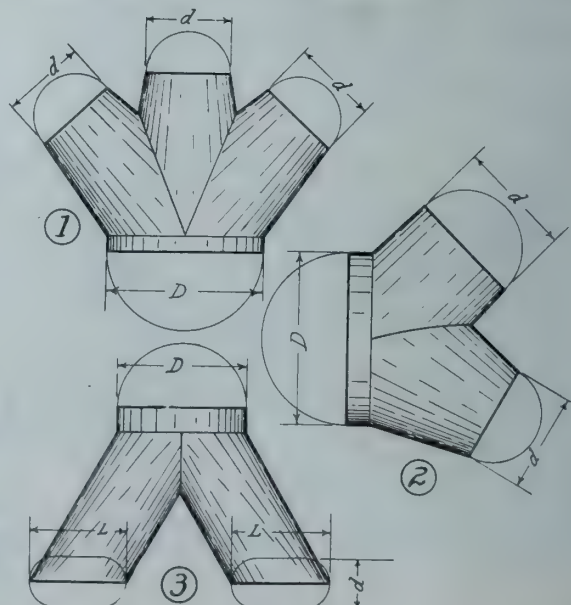
2—Ratio of branches 3 : 2.

Area of large branch = $\frac{3}{5}$ of $176.715 = 106.03$ sq. in.

Dia. of large branch = $\sqrt{\left(\frac{A}{.7854}\right)} = 11.62$ inches.

Area of small branch = $\frac{2}{5}$ of $176.715 = 70.68$ sq. in.

Dia. of small branch = $\sqrt{\left(\frac{A}{.7854}\right)} = 9.48$ inches.



Sanitary Engineer

HOYT METALS

SHEET LEAD

LEAD PIPE

LEAD TRAPS

CALKING LEAD

WIPING SOLDER

LEAD BENDS

LARGEST MAKERS OF WHITE METALS IN THE WORLD

HOYT METAL COMPANY

MONTREAL

TORONTO

WINNIPEG

A VALVE for EVERY SERVICE

For Satisfaction Sake Use Jenkins Valves



Fig. 106

JENKINS BRASS GLOBE
VALVE

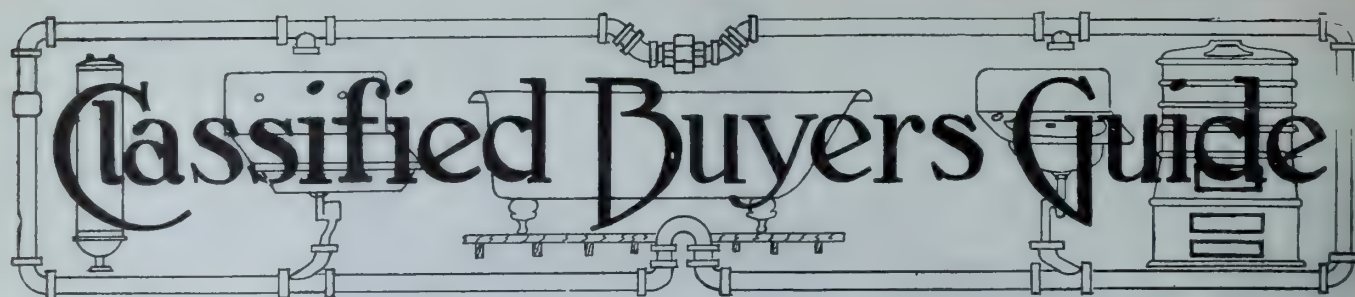
Standard Pattern

Satisfaction for you and for the man who pays the bill is positively assured when Jenkins Diamond-marked Valves are installed.

There will be no complaints or "comebacks" where Jenkins Valves are used. Their superior construction assures dependability, the quality of the metal used and the manner in which the weight is distributed make for long, satisfactory service under the most trying conditions.

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James Morrison Brass Mfg. Co., Toronto.

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The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
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C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS

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Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Empire Mfg. Co., Ltd., London and Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

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Hotstream Heater Co., Cleveland, Ohio.

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Empire Mfg. Co., Ltd., London and Toronto.
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James Morrison Brass Mfg. Co., Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
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The water circulates through upper and lower Headers, and between two tubes—a smaller tube within a tube.

Uses 80 per cent. less water.

Saves one-third of coal. A smaller furnace keeps the water hotter.

Costs 20 per cent. less to instal a system.

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Your customers know the excellent reputation of Morrison Products and buy them readily.

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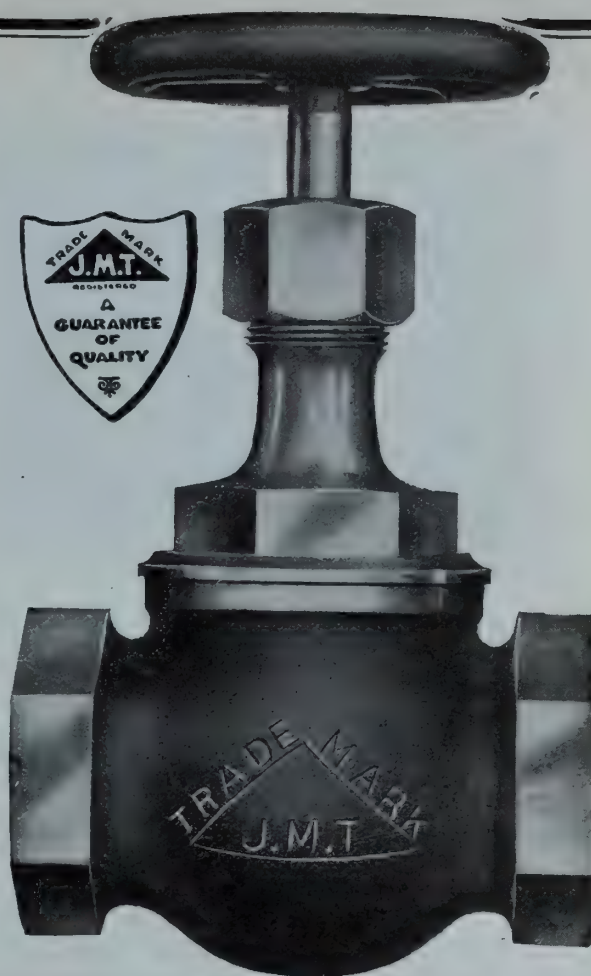
In every feature of design Morrison Valves are abreast of modern engineering progress.

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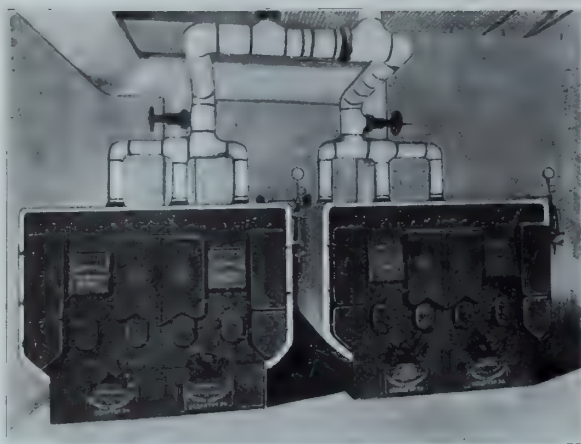
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The two curves are from actual laboratory tests and the same radiator, fitted with two kinds of radiator traps—one of which was the Dunham Radiator Trap—the trap that has been making radiators practically 100% hot since 1903.

You know which trap you would prefer. So would the man who pays the bill for the radiation which he rightfully expects will keep every room warm.

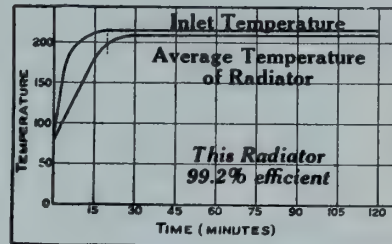
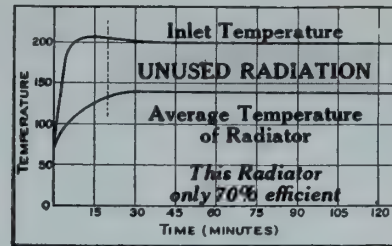
Making radiation usable is as commendable as the conservation of coal.

*Send for the entire Dunham story
You will find it interesting*

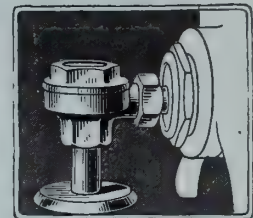
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The
Dunham
Radiator
Trap



The DUNHAM
HEATING SERVICE

Iron Pipe Joint Cement

Sets Like Gum---Allows No Leaks



Here's a handy preparation, useful and interesting to every plumber and steamfitter in the Dominion. Hause Iron Pipe Joint Cement sets like gum and allows no leaks. It is simple in principle and very easy to apply. A reliable, efficient

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In order to add still further to the efficiency of Hause Iron Pipe Joint Cement it is offered in either liquid or powder form. It is packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, and also in 100-lb. and 250-lb. barrels. Ask your jobber for prices, or write us direct.

Manufactured by Chas. F. Hause Mfg. Co., Ltd.

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K-T Extension Sink Brackets

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how well we qualify for the job. Lots of Stock, you won't need to wait for delivery.



K-T Adjustable Range Boiler Stand



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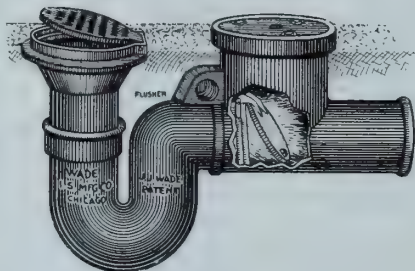
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Your jobber can supply our goods—Ask for them

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Wade Drain Trap



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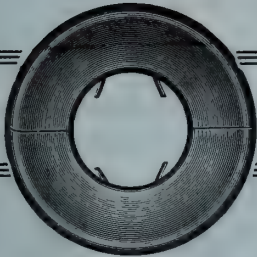
Not an hour—day or night—when the Gas is not available—for cooking, heating water, household heating, lighting, etc.

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The split ceiling plate is coming

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Made from the best brass obtainable and greatly preserved against corrosion from plating acids because they are nickel-plated before being assembled. This valve is simple to adjust. Works automatically. Write for catalog showing our complete line of specialties.

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THE GENDRON MANUFACTURING CO., LIMITED, TORONTO
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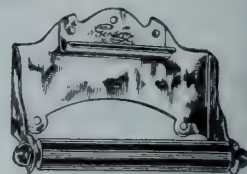
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Soap Dish



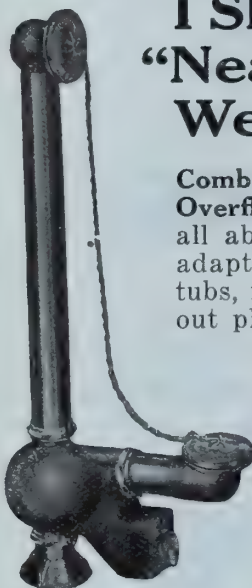
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Paper Holder

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"Handy"
I Should Say So
"Neat"
Well, I Guess Yes



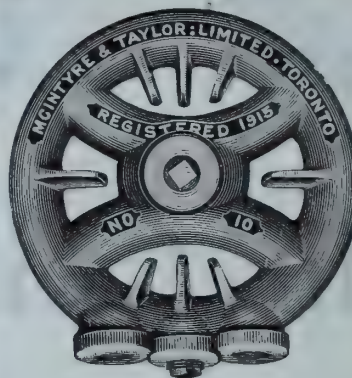
Combination Bath Waste and Overflow, with Trap combined, all above the floor, adjustable; adaptable to all styles of bath tubs, fitted with accessible clean-out plug. Made of heavy cast brass, heavy cast overflow strainer, properly nickelled; in short, it is an acquisition to any installation, and is a time-saver for the engineer in installing his work.

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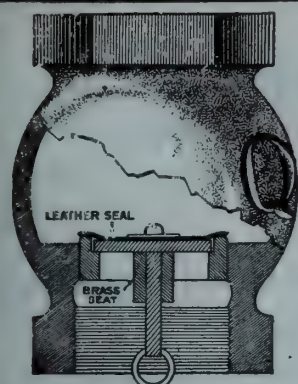
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This is a "Q" Foot Valve

And it Just CAN'T Leak

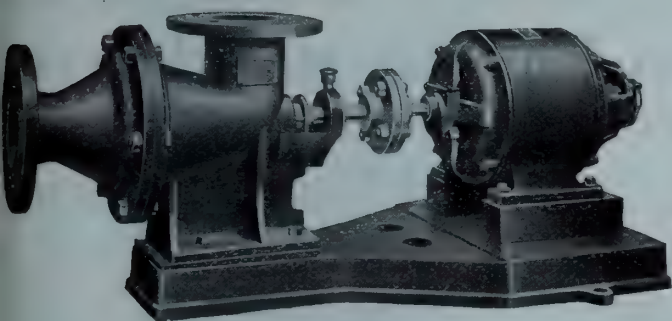
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The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
GALT, CANADA



No. 2 Size Positive Circulator

The above cut shows one of the four sizes of Positive Circulator we manufacture. They stand for economy. In the installation of a Hot Water Heating System you save money by using a Positive Circulator because of the great reduction in radiation and pipe sizes required. In the maintenance of the system you save money because the heat is carried from the boiler to where it is required with very little loss. Positive Circulators are efficient. They ensure even distribution of heat throughout the system and keep the water in the radiators at about the same temperature as the water in the boiler.

Write us for details or let us show you some installations.

The Atlas Engineering & Machine Co.
LIMITED

23 River St., Toronto



Williams' Improved "Vulcan" Chain Pipe Wrench

WILLIAMS' CHAIN PIPE WRENCHES have been standard for nearly half a century. Made in 8 sizes for $\frac{1}{4}$ to 18-in. pipe, entirely of drop-forged and wrought steel, with each Flat Link Chain "proof-tested" and certified. They guarantee hard and continuous service.

Williams' "Vulcan" and "Falcon" Pipe Wrenches are the *only* Chain Wrenches which offer this certified assurance.

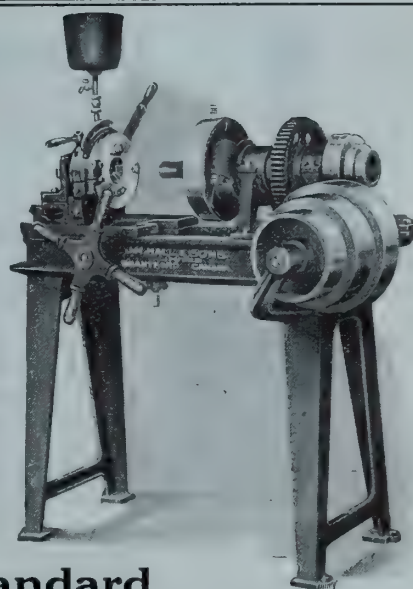
At your dealer's. Ask for booklet.

J. H. WILLIAMS & CO., Limited
"The Wrench People"

Formerly Canadian Division of
The Whitman & Barnes Mfg. Co.

77 Thorold Road, ST. CATHARINES, ONT.

Large Spindle and Spindle Bearings. Rack and Gear Machine Cut. Specially constructed Reservoir and Filterer. All Gears amply protected. Large Oil Trough. Compact Control. Crank furnished for Hand Power. Power Pump supplied extra. Special Overflow Valve extra.



Hall Standard Improved Pipe Machine

is of simple construction, quick and easy of operation, and has been built on the Hall standard of workmanship and service.

Let us mail you full information regarding this money-saver, together with catalog covering our complete line of Power Pipe Threading Machinery.

Delivery from stock.

**Williams Tool Corporation
of Canada, Limited**
Brantford, Canada

THE CREDIT MAN of a manufacturing or commercial concern must know now the financial standing of the firms to whom his company extends credit. He has his Dun or Bradstreet.

The Purchasing Agent or the buyers of various departments must be convinced that the goods delivered are as represented in both weight and quality. They have their scales and testing apparatus.

The Advertising Man must know that the circulation claims of the papers with which he does business are justified by the facts. He has the reports of the Audit Bureau of Circulations.

Good firms invite investigation of their rating or their merchandise.

Good papers furnish A. B. C. reports to their advertisers.

Sanitary Engineer is a member of the Audit Bureau of Circulations.



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.

Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

FULL INFORMATION FREE, WRITE TONIGHT

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. KOTHE, Prin.

St. Louis, Mo.

When Answering Advertisements Kindly Mention
this Paper

KERR VALVES

possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



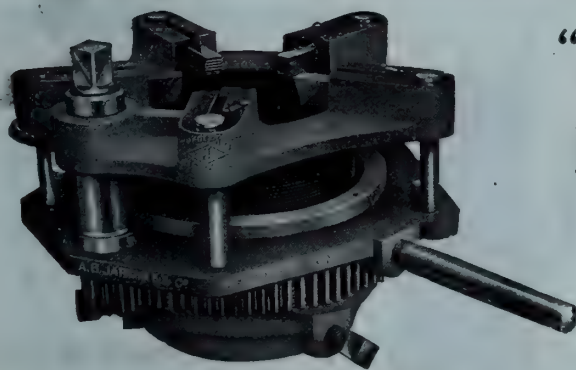
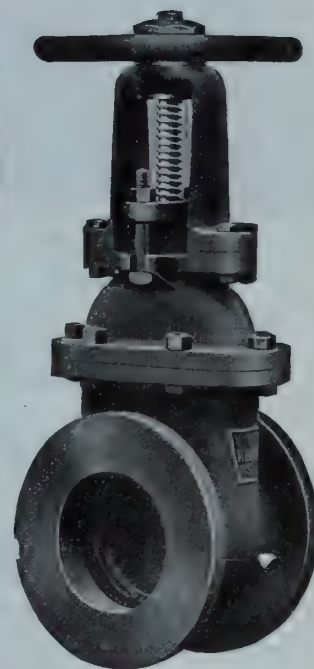
They insure the best of service, and stamp any job on which they are used as well equipped.

Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers
WALKERVILLE, ONTARIO



"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

"Made in Canada"

Sole makers of "Jardine" Pipe-Threading Tools.
Sole Licensees to manufacture and sell Toledo
Pipe-Threading Tools in Canada.

Agents, Winnipeg and West—Stanley Brock, Ltd.,
Winnipeg, Man.

Brockville and East—J. R. Devereux, 358 Beaver
Hall Square, Montreal.

Belleville and West—W. H. Cunningham & Co.,
269 Richmond St. West, Toronto, Ont.

"JARDINE" and "TOLEDO" Pipe-Threading Tools

Interesting Features

The Jardine and Toledo have no cams or gimcracks to get out of order, and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

A. B. Jardine & Co.
Limited
Hespeler -- Ontario

We have the largest stock of pipe-threading tools in Canada and can make prompt deliveries. Send this coupon for catalogue and literature that will interest you. Do it now.

Name _____

Address _____

Sanitary Engineer _____

C

WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal

C

C

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**Plumbing and Heating
Supplies****Wholesale Only****Marks & Co.**

Cor. John and Gore Sts.
Hamilton Ontario

**Fittings
Limited**

Trade Mark

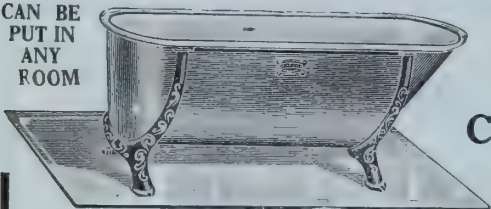


Registered

Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa

CAN BE
PUT IN
ANY
ROOM



**PROFITS
IN
COUNTRY
TRADE**

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal, Quebec and Eastern Representative.

**PRIVATE LIGHTING
SYSTEMS**

Now is the time. You are the man—to sell and install "Scientific" acetylene lighting systems in your locality. Rural Residences, Churches, Stores, Clubs and Hotels are seeking modern lighting outfits and you can reap a good profit in supplying and fitting the gas piping and fixtures as well as the generator.

Hundreds in use in the best buildings upwards 20 years. No delicate and expensive parts that require renewing as in other systems, so that you can give a better guarantee than any others.

Send for circular and go after this business. We will assist you.

P. Campbell & Co.
Manufacturers
St. John, N.B.

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Storage Tanks
Hot Water Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

WRITE US FOR PRICES

Atlas Tank Works

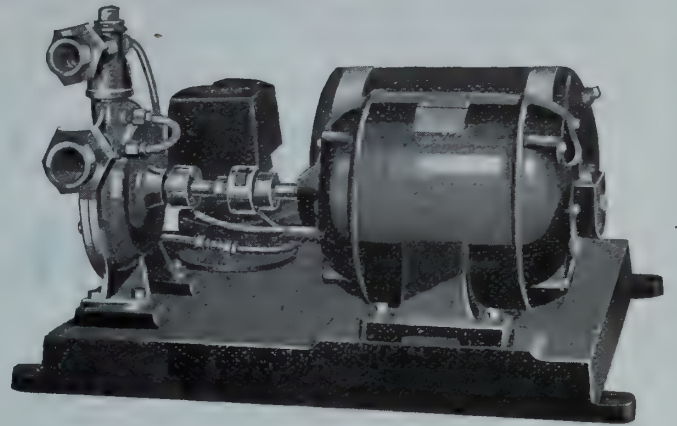
Works and Office:
105 Ritchie Ave.
TORONTO

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

FOR SALE—PLUMBING, HEATING AND Sheet Metal Business, in one of the most prosperous cities of Western Canada. Has been established eight years and has good connection in city and country. This is a splendid opportunity for one or more live wires. With stock, tools and property, or sell stock and tools and lease the property. For particulars apply Box 936, Sanitary Engineer.

INDEX TO ADVERTISERS

Allison, K. B.	8-9
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	50-51
Atlas Engineering & Machine Co., Ltd.	69
Atlas Tank Works.	72
Bastian Morley, Ltd.	14
Beaton & Cadwell	67
Beaton & Corbin	48
Borden Can. Co., Ltd.	39
Burrows, Stewart & Milne Co., Ltd.	61
Campbell & Co., P.	72
Canadian John Wood Mfg. Co., Ltd.	4-5
Canada Metal Co.	23
Canadian Brass Co.	2
Canadian Tube & Steel Products.	72
Chamberlain Desolvo Co.	13
Consumers' Gas Co., Ltd.	66
Crane Limited	12
Cunningham & Co., W. H.	57
Dennis Wire & Iron Works Co., Ltd.	20
Dominion Sheet Metal Corp., Ltd.	1
Dunham Company, Limited, C. A.	65
Empire Brass Mfg. Co.	Outside front cover
Fittings, Ltd.	72
Galt Stove and Furnace Co.	24
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	68
Greenfield Tap & Die Corp.	21
Gurney Foundry Co.	19
Hall Zryd Foundry Company, Limited.	3
Hall & Sons, Ltd., John H.	46
Hamilton Stove & Heater Co., Ltd.	55
Hause Mfg. Co., Chas. F.	65
Hoyt Metal Co.	59
Hotstream Heater Company	46
International Malleable Iron Co.	45
Jardine & Co., A. B.	71
Jenkins Bros., Limited	59
Katie Foundry	66
Kerr Eng. Co., Ltd.	71
Marks & Co.	72
McAvity & Sons, Ltd., T.	15
McDougall & Co., R.	69
McIntyre & Taylor, Ltd.	68
Montreal General Tool Co.	62
Ontario Metal Products	68
Morrison Brass Mfg. Co., Ltd., Jas.	63
Mueller Mfg. Co.	47
Porcelain Products, Limited	63
Port Hope Sanitary Mfg. Co., Ltd.	34-35
Spencer Heater Co. of Canada, Ltd.	64
St. Louis Technical Institute	70
Standard Sanitary Mfg. Co.	10-11
Steel Trough & Machine Co.	72
Taylor-Forbes Company, Limited	16
Toronto Hardware Mfg. Co.	17-18
United Brass Foundry & Engineers	57
Wade Iron & Sanitary Mfg. Co.	66
Wallaceburg Brass & Iron Mfg. Co., Ltd.	6-7
Warden-King, Limited	64
Westco Pumps, Ltd.	73
Williams & Co., J. H.	69
Williams Tool Corp.	69
Wolverine, Ltd.	68



The New *Westco* Tankless Water System

It is very often said that nothing is so perfect but that it may be improved.

To some extent this is true—at least we think so—so much so, that we are always investigating to discover means of improving the Westco System.

The general operation of the Westco Tankless System represents absolutely the last word in water pressure systems. Therefore, it is only in the details of construction of the system that we can effect improvements.

If you already sell Westco Systems you should write us for particulars about the improved Westco System.

If you do not sell Westco Systems you should write and find out what you have been losing by not handling this line.

For your information: The Westco Tankless Water System is now fitted with an

All-Bronze Pump and New Westco Two-Pole Pressure Switch

Write us for complete information about this pump, which has only one moving part, and for our Dealer Co-operative Plan.

Westco Pumps Limited

707 Yonge Street
Toronto, Ont.

He Didn't Know Business Was Dull!

An agent for automobiles, up in a part of the country noted for severe winters, was ordering cars from the company's sales manager all winter. It aroused curiosity on the sales manager's part. When, in mid-winter, the orders increased, the sales manager determined to investigate this unusual occurrence. He went up there.

When the sales manager told him that the other agents weren't ordering, the agent was surprised. "My customers," he said, "want their cars early in the Spring, and when they see them available they buy, that's all." He didn't know it was hard to sell cars in the winter time. He hadn't thought about it, he was too busy selling them.

More happiness, sunshine, pleasant thoughts and actual business come to the fellow who is busy all the time, than to the one who waits and worries.

Pipeless Furnaces mean extra business

EVERY pipeless job you handle is so much "velvet." It doesn't cut into your sales of piped furnaces one iota. It opens up a new market for you, and it offers quick, clean profit.

Somebody in your town is going to get the cream of this business in the next few months. Why not you?

You're sure of getting sales—reputation—satisfactory profit if you handle the pipeless furnace which has a lot of talking points—all of real merit.

The "Hecla" Pipeless Furnace dealer can outmatch competition when he begins to talk of Patented Fused Joints, Steel-Ribbed Firepot, Cast-Iron Combustion Chamber, Circular Waterpan, Individual Grate-Bars—and all the other "Hecla" features.

And you take no chances when you recommend the "Hecla" Pipeless. Installed according to our plans, we guarantee it to give absolute satisfaction—and our guarantee is the strongest you've ever read!

Moreover, the "Hecla" Pipeless is a proven success. Out of all the hundreds installed we have not received a single complaint.

Don't pass up the extra business the "Hecla" Pipeless offers you.

If only to satisfy your curiosity—send now for: (1) Booklet of photographs and testimonials; (2) Sample enquiry forms for sketch plans; (3) Our famous consumer booklet, "Buying Winter Comfort"; (4) Full facts on the unique and valuable selling and advertising assistance we give to "Hecla" Pipeless dealers.

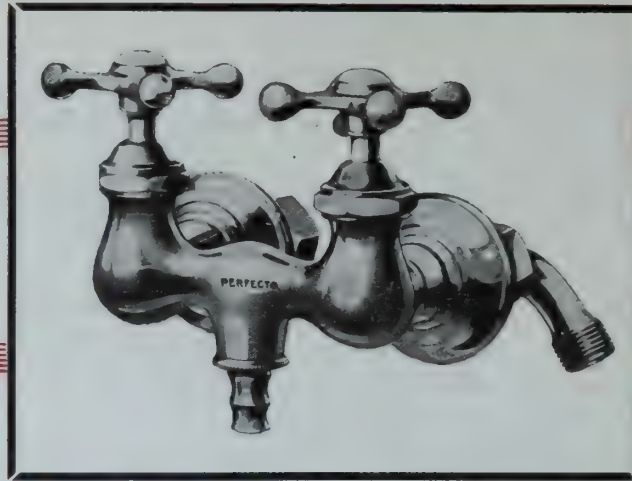
Simply tear out this page — write your name and address in the margin, and mail.

CLARE BROS. & CO., Limited
Preston Winnipeg Vancouver



HECLA

PIPELESS FURNACE



PERFECTO Quality Permits the PERFECTO Guarantee

THE PerfectO "Two-to-One" Guarantee is the fairest and squarest condition upon which any article could be sold. "Any article of our make, with the PerfectO Trade Mark on it, proving defective through inferior metal or improper workmanship on our part, will be replaced with **two** good ones at **no charge**."

Nothing could more conclusively prove the quality of PerfectO Brass Goods than our willingness to back them with a guarantee like that. Unless every PerfectO article is absolutely perfect, we stand to lose **double** the cost of that article. The reason we can afford to make a statement so sweeping is that PerfectO Brass Goods **don't prove defective**. They are perfect in every respect. Our master-gauge process of machining, the skilled workmen employed, the accuracy with which every process is carried out, all combine to make PerfectO Brass Goods unsurpassed in quality and value. The PerfectO Guarantee simply makes assurance doubly sure.

GALT BRASS COMPANY LIMITED

GALT, CANADA

PERFECTO BRASS GOODS

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, APRIL 15, 1921

No. 8



An Addition To the EMPIRE Family



Cast-Iron
Centrifugal
Trap
A-1829

This is our newly designed Empire centrifugal trap with vent at bottom and adjustable, nickel-plated sink connection.

The advantages of a trap with centrifugal action and of this special design will be readily appreciated.

It is of the usual Empire quality and finely finished.

Specify Empire products for all installation work and recommend them for replacements.

The use of our products means satisfaction to all concerned. Write us your needs.

"If it's an EMPIRE product you know it's right."

**Empire Brass Manufacturing
Company, Limited**

London and Toronto, Canada

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:

E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 307

The Tide Has Turned!

The average business man never knows that the moment to buy has passed until the day after.

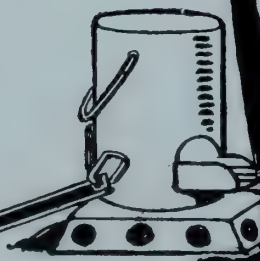
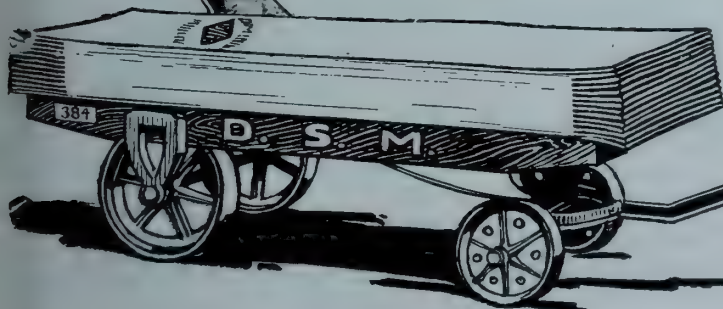
Take our tip on

GALVANIZED SHEETS

and buy now for second quarter delivery.

You'll be sure of the goods, and if you buy Premier the price and quality are guaranteed absolutely right.

TINKER TOM.



YOU BETCHA!

A Little
"Straight Talk"
to the Canadian
Plumbing Trade

Th' world has been ailin'—as sick as a
pup.
But it's gonna git better, then folks'll
cheer up;
So, meanwhile, doggone it, let's pull a
fool trick,
By cheerin' up now, whilst th' world is
still sick!
As long as th' glooms are barred out,
you kin tell
Th' old world ain't failin'—It's a-goin'
t' git well!

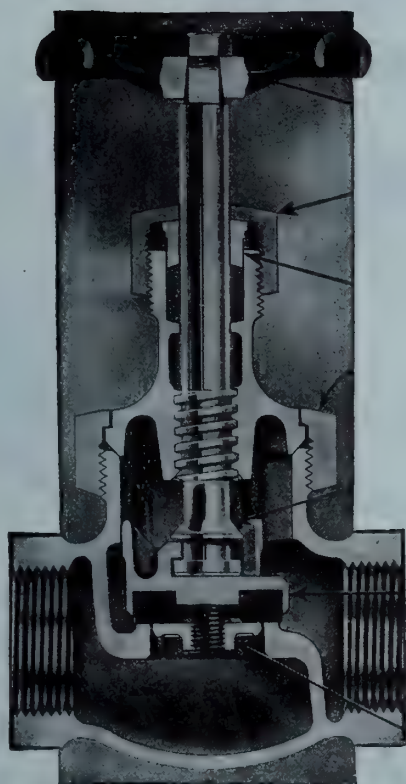
—Jack Appleton.

Yours for efficiency and service,

CANADIAN BRASS COMPANY LIMITED
GALT **TORONTO**

SEVEN FEATURES OF THE CRANE NUMBER 7

for use in plants where continuous service is required and where discs must be changed quickly without injury to the valve.



- 1—Easily removable malleable iron, non-heat wheel
- 2—Malleable iron nut
- 3—Brass gland
- 4—Malleable iron nut
- 5—May be packed under pressure when valve is wide open
- 6—Removable disc holder for quick change
- 7—Removable nut for changing disc

Made in sizes $\frac{1}{4}$ -to 2-inch; for 150 pounds steam working pressure; discs for steam, air and water supplied as ordered. Body, Bonnet, Stem, Disc Holder, Gland, made of Brass.

*Fully described in Circular No. 1
which will be sent upon request.*

***Manufacturers of Valves, Fittings and Piping Equipment
and Distributors of Pipe, Plumbing and Heating Supplies.***

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO,
WINNIPEG, REGINA, CALGARY,
VANCOUVER.

Sales Offices:
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LIMITED**

HEAD OFFICE & WORKS
1280 ST. PATRICK STREET
MONTREAL

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Limited**

Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM.

The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.

CANADIAN VENEERING CO., Inc.
ACTON VALE QUE., CANADA



Investigate!

KERR VALVES

possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



They insure the best of service, and stamp any job on which they are used as well equipped.

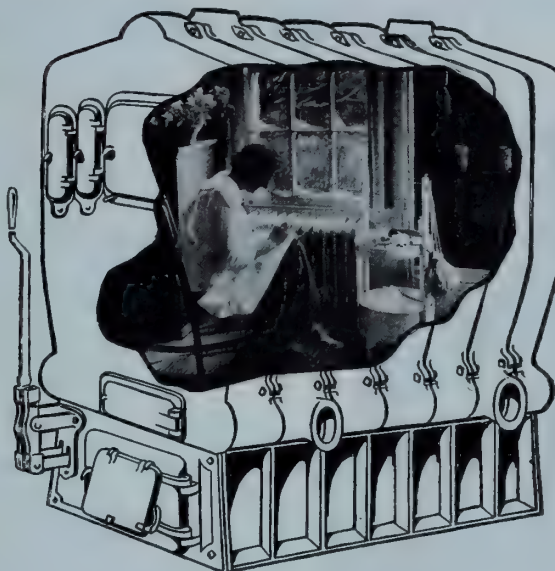
Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers
WALKERVILLE, ONTARIO





The Things I See When I Am Seeing Things

By Booster Binx

When I speak of seeing things, I don't mean the things you mean.

I mean the things a fellow sees, when he is wide awake and his brain clear as a crystal.

Take that Burnham Boiler for example.

When I open the fire-box door and look in; it's not grates and fire surface I see.

To me it's just like opening the hall door of a cosy, comfort home and looking in at its contentment and happiness.

Sometimes I see Dad shaving in a bathroom that's warm as toast. So warm and toasty that he starts to whistle and cuts himself.

Then again I see Mother sitting in comfort close to a snow scene window, and darning the knees of little Willie's stockings.

And then again it's evening time, the lamps are lighted, and supper over.

While Dad smokes and reads his paper, Mother is looking through a seed catalog and making a list of the flowers she is going to grow.

Always I see cosy comfort.

Always it is plain as day that our Happy Solution is the happy solution.

And by the way, have you one of the Happy Solution books? If not, send at once for one. If you know some folks who want to get some sound sense on heating told in an interesting, chatty like way, send along their names; at once a Happy Solution will go to them.

And another thing, when you start to sell a Burnham, don't just sell a boiler.

Sell them Burnham Cosy Comfort.

Next time I want to tell you about a dangerous Boiler Bolshevik I know.



Lord & Burnham Co. Limited

of Canada

ROYAL BANK BLDG.

TORONTO

(Boiler Department)

Factory:

St. Catharines, Ontario



Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?



Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO



Victory Radiators

The water circulates through upper and lower Headers, and between two tubes—a smaller tube within a tube.

Uses 80 per cent. less water.

Saves one-third of coal. A smaller furnace keeps the water hotter.

Costs 20 per cent. less to instal a system.

Over 200 successful installations made in the Province of Quebec.

Representatives wanted — Plumbers and Steamfitters — in different provinces. Address,

MONTREAL GENERAL TOOL COMPANY, LIMITED

2419 Notre Dame St. East, Montreal

Electric Weld

RANGE BOILERS

In Step

With the March of Progress

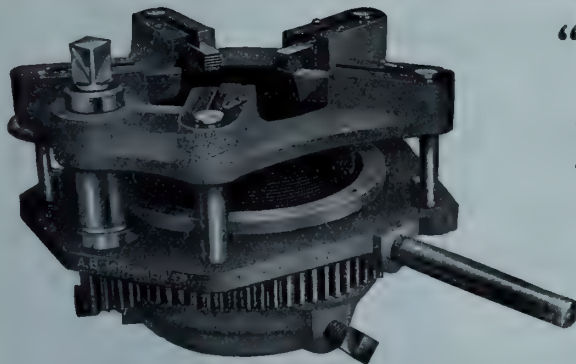
In this age of progress no industrial product can stand still and survive. The improvements of the age are demanded by a well-informed public that insists on having all the improvements that science and invention can provide.

Electric Welding produces Range Boilers that are practically a continuous shell. Electric Welding, in effect, eliminates all seams and forms a solid union of the metal. There are no rivets or rivet holes to leak; the shell is not weakened by punched or drilled holes.



*Standard Size—
For New Work
or Replacement*

**Canadian
John Wood Mfg. Company, Limited**
Grand Trunk Railway and Hillingdon Ave.
TORONTO, CANADA



"Toledo" Geared Adjustable Threading Tool.
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

"Made in Canada"

Sole makers of "Jardine" Pipe-Threading Tools.
Sole Licensees to manufacture and sell Toledo
Pipe-Threading Tools in Canada.

Agents, Winnipeg and West—Stanley Brock, Ltd.,
Winnipeg, Man.

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"JARDINE" and "TOLEDO" Pipe-Threading Tools

Interesting Features

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A. B. Jardine & Co.
Limited
Hespeler -- Ontario

We have the largest stock of pipe-threading tools in Canada and can make prompt deliveries. Send this coupon for catalogue and literature that will interest you. Do it now.

Name _____

Address _____

Sanitary Engineer

Good Business

We are now in times when business is to be gotten only by spending plenty of energy and thought in securing it.

The Plumbing and Heating trade, however, has many opportunities for the development of business.

For instance, what do we lack in Canada to-day more than sanitary conveniences, and what is more important to the health of the public than proper sanitation and adequate heating facilities?

It will pay you to follow Sanitary Engineer from now on more closely than ever. Every successful business man must keep his fingers on the pulse of his business.

The editorial contents is replete with ideas for securing business and holding customers and in the advertising pages you will find the products of advertisers who publicly "dare risk on them the honor of their names" in bringing the quality and service of their goods to your attention—watch the advertising pages.

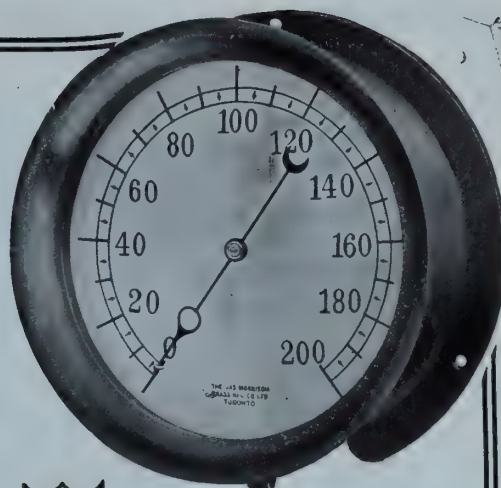
Sales Built on Confidence

Morrison Gauges

include gauges for every conceivable purpose — for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

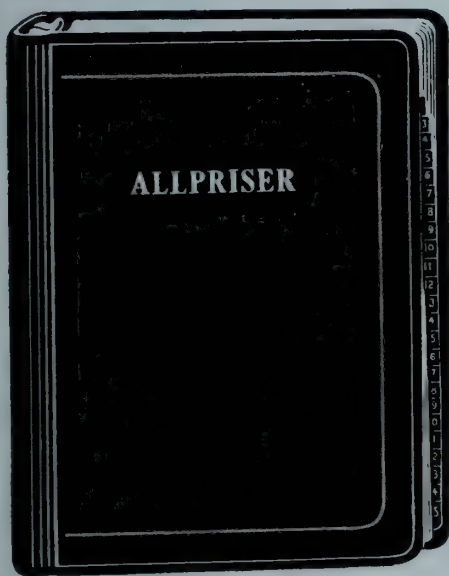
There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.



Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.

James Morrison Brass Mfg. Co., Ltd.

93-97 Adelaide Street West, Toronto



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Toronto

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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Vol. XV.

TORONTO, APRIL 15, 1921

No. 8

CONTENTS

Tenth Annual Convention of Ontario Society, Domestic Sanitary and Heating Engineers.	
Reports of Officers.	
Committee Reports on Sanitation, Legislation, Apprenticeship, etc.	
Development of Heating Principles.	
Address on Operating Costs.	
To Organize Canadian Trade Extension Bureau.....	13-27
Editorial Comment	28
Reducing Plumbing Costs	29
Practical Helps for Tinsmiths	31
Sewage Disposal for Small Communities	32
News From Here and There	33-35
Current Market Quotations	34-42

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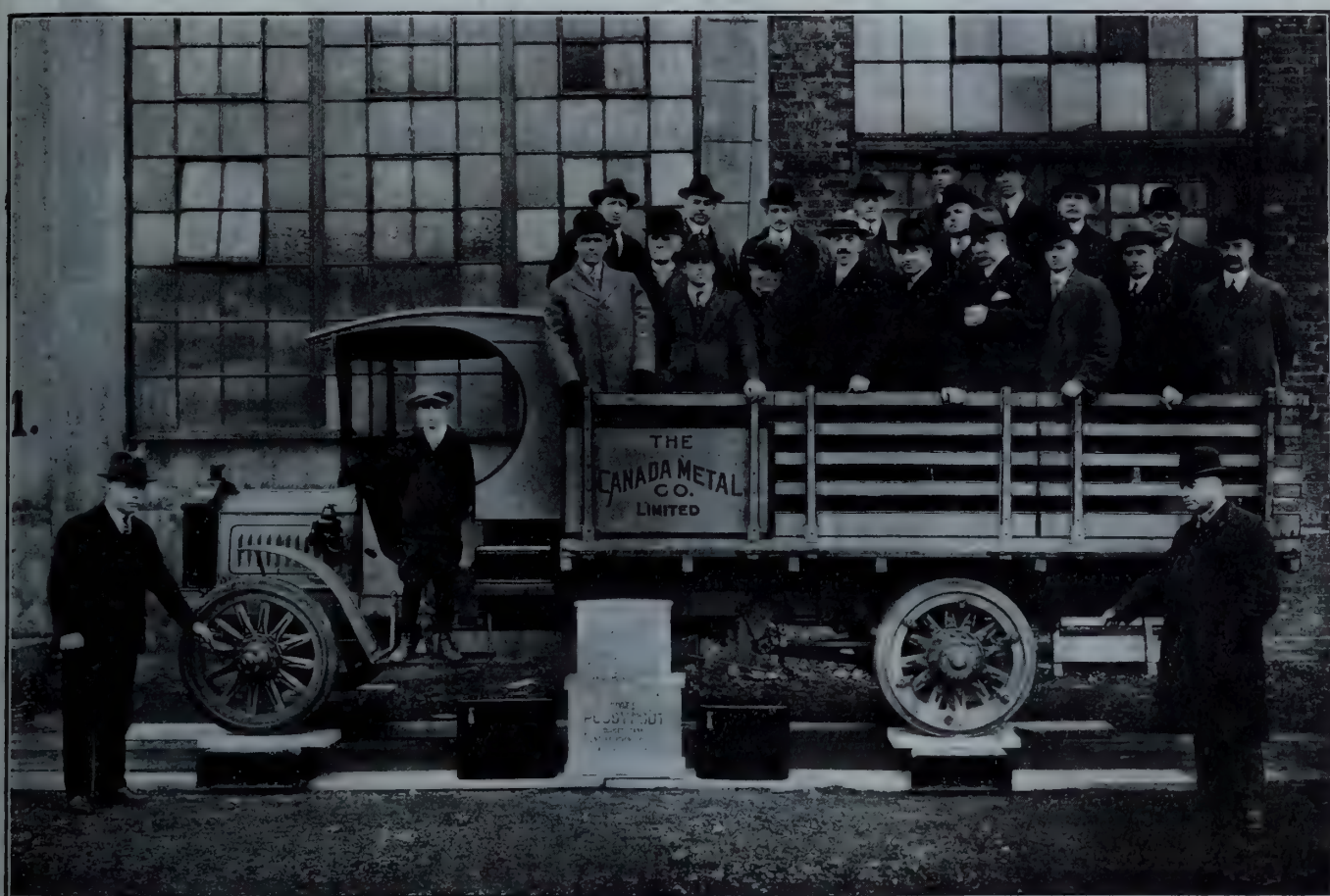
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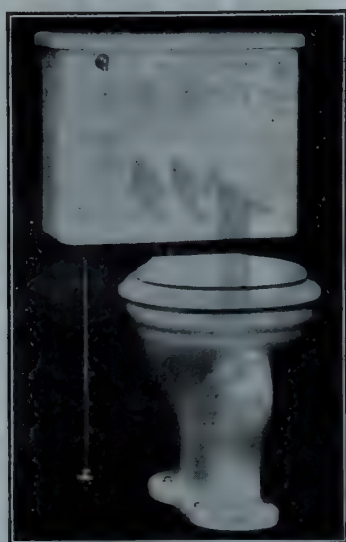
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1907

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Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

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and
Fifteenth
of Month

Volume XV.

TORONTO, APRIL 15, 1921

No. 8

To Establish Trade Extension Bureau

Definite Steps Taken at 10th Annual Convention of Ontario Society D.S. & H.E. to Form Canadian Bureau to Educate Trade—Goodly Representation of Manufacturers and Wholesalers Present—To Assist Minister of Labor in Framing Ontario Plumbing By-laws.

MORE harmonious relations between various branches of the plumbing and heating trades and definite steps to raise the general status of the trade by educational means were features of the tenth annual convention of the Ontario Society Domestic, Sanitary and Heating Engineers, held in Toronto. The morning session of the first day opened with a meeting of the directors and executive board in the society's premises at 2 College street. Reports of the various officers were dealt with and prepared for presentation to the general convention and plans laid for the entertainment of the delegates.

At the afternoon session a conference with manufacturers and wholesalers of plumbing was held. This conference was for the purpose of bringing about definite action in regard to the proposal for a Canadian Trade Extension Bureau along similar lines to that now in operation in the United States. This matter was brought up at last year's convention by T. J. Minnes, Brantford, Ont., who was then president of the society. In his presidential report Mr. Minnes states that after good progress had been made early in the year, following the appointment of a joint committee of the master plumbers and representatives of the manufacturers and wholesalers, this was followed by a lull owing to the fact that certain difficulties arose. Mr. Minnes stated that further progress was made toward the end of the year and he has reaffirmed his faith in the movement.

An Educative Policy

Mr. Minnes pointed out that the principle of trade extension was an educative policy designed to educate everyone participating in the trade; to make better business men of them; to teach them to conduct their business under better conditions than in the past, so that they may command the respect of the public; also to give the public better service than in the past, and educate the public to use good plumbing goods. Ultimately, of course, this would benefit the manu-



THOMAS M. MAXWELL,
Toronto, formerly Treasurer of the Ontario Society, Domestic Sanitary and Heating Engineers, who was elected President of the society at the 10th annual convention in Toronto.

facturers and wholesalers, for the reason that there would be more and better plumbing goods sold. Thus the co-operation of the latter branches of the trade had been sought.

After considerable discussion of details it was decided to appoint a committee with power to establish a Trade Extension Bureau in Canada. This committee is composed of the following members: T. J. Minnes, Brantford, president; L. L. Anthes, Anthes Foundry Company, Toronto, treasurer; James Cunningham, Welland, Ont.; Roy Belyea, Toronto; and G. F. Frankland, Toronto, secretary.

It is understood that a sum of money has been raised by contribution from manufacturers and wholesalers and that immediate steps will be taken to secure a permanent organization. Mr. Minnes stated to *Sanitary Engineer* that the committee expected to have a complete organization with a managing secretary appointed within a period of about five weeks.

Among the firms represented at this

conference were the following: Messrs. F. Armstrong, Port Hope Sanitary Mfg. Co.; Wallace and Crawford, Standard Sanitary Mfg. Co., Toronto; Robb, Empire Brass Mfg. Co., London; Owston, James Robertson Co., Toronto; Wilkes, Canada Pipe & Steel Co.; Hutchinson, The Mott Co., Montreal; F. Stinson, Galt Brass Co.; L. Anthes, Anthes Foundry Co.; Hobbs, Ruud Mfg. Co.; Vowell, Crane, Ltd.

Address on Publicity

Following the conference on trade extension, James Fisher, of The James Fisher Advertising Agency, Toronto, gave an address on "Publicity and Co-operative Advertising for the Plumbing Industry."

On the principle that co-operation should be the keynote in business rather than competition, Mr. Fisher advocated a co-operative newspaper and magazine campaign to widen the market for plumbing goods. He pointed out that sanitary plumbing is a basic industry and that, on that account, any money spent on a co-operative effort would do permanent good to the industry. He contended that co-operative advertising would not only enlarge the basic market by creating new users, but would also reduce the cost of selling by supplementing personal effort and making it more effective. It would, he said, foster public goodwill to those engaged in the plumbing industry by pointing out the service of sanitary engineering to the community and the relative cheapness of that service. In Mr. Fisher's judgment co-operative advertising should be financed by the manufacturers and jobbers, as it would create a demand for their goods and thus help to place their industries in a stronger and healthier position.

The evening session of the first day was spent at the plant of C. A. Dunham Co., Ltd., 1535 Davenport Road, Toronto, where a lecture, illustrated by lantern slides, was given by E. T. Flanagan. The lecture was on the subject of "Heat-

ing" and is outlined fully elsewhere in this issue. A smoker and social hour was enjoyed by the delegates during the evening.

The morning session of the second day of the convention was opened to the delegates and officers and committee reports were received. These are outlined fully in this issue.

Assistance in Plumbing By-laws

In the general business discussion a communication was read from the Minister of Labor of the Province of Ontario in which the assistance of the plumbing trade and the trade papers was asked in connection with the plumbing by-laws for the province which are now being framed. It was pointed out that the Minister of Labor is comparatively

new at this work and should have the utmost support. A resolution was passed asking the trade papers to do what they can to see that the members of Parliament and boards of health are supplied with copies of their papers in order that those officials might be kept informed on developments in the trade.

John Wright, chairman of the committee on sanitation, pointed out that over 700 copies of the proposed regulations had been sent out to master plumbers in the province, so that they would be acquainted with the law before it is enforced and have time to make suggestions.

Standardization of Equipment

Discussion also touched lightly upon the question of standardization of equipment and it was thought that much pro-

gress had been made along this line in recent years by manufacturers who have provided a number of new pieces of equipment which have overcome some of the difficulties experienced in the past. These had to do with vents in high buildings, etc.

At the afternoon session the annual election of officers and committees took place and the new officers, whose names are shown elsewhere, were elected without dissension. The election was followed by the address on "Operating Costs and Profits," by Messrs. H. A. Weinraub and David E. Norwich, as outlined elsewhere.

The convention was concluded with a banquet at Bingham's "Downtown" in the evening, a full report of which appears in this issue.

Progress in Trade Extension Movement

Directors Considered Wage Proposals in Various Ontario Cities—
Want London Represented—Encouraging Reports From
Niagara Falls

Report of Retiring President, T. J. Minnes, Brantford, before 10th Annual Convention Ontario Society D. S. & H. E.

A GAIN I have the honor of presenting to you a report of my stewardship of the affairs of your society as entrusted to me, and I hope my actions will meet with your approval.

Your directors have had but one meeting throughout the year having a full attendance, although there have been several meetings with a partial attendance of your directors.

The greater part of our work for the past year has been in connection with trade extension, which we have found to be a difficult proposition to handle owing to the different interests involved in such an organization, and the different angles requiring consideration which were continually cropping up; we have found many obstacles and prejudices that had to be overcome, and with no little difficulty, I assure you. The trade extension movement made rapid progress in the first part of the year, after which there was a decided lull but, after persistent efforts, I am pleased to report that the outlook is much brighter. I do not wish to dwell upon this subject in my report as this issue will be more thoroughly gone into at your present convention. I wish to express myself clearly as being of the opinion, or rather the firm belief, that trade extension conducted along proper lines is the greatest thing for the betterment of the plumbing industry in all its branches than any other movement that could be attempted; and the more I have studied it the more firmly I am convinced. No doubt you are all aware of the investigation made by ten of your members who visited Evansville, Indiana, where they visited the American Trade Extension Bureau and secured valuable information as to



T. J. MINNES,
Retiring President Ontario Society D. S. and H. E., who has been elected President of the committee formed to establish a Trade Extension Bureau in Canada.

its workings. Reports from this committee you will have an opportunity of hearing in convention.

Sub-directorate

I regret that the sub-directorate which was appointed at your last convention to look after the different districts did not function. This is regrettable indeed, and I am still of the opinion that the idea is a good one if the members appointed to perform the task outlined to them would sacrifice a little time and energy in helping to build up the society in their

respective districts. No doubt it is clear to you that it is impossible for your directors to spend enough time visiting the many cities and towns organizing the trade, and revisiting them to hold their organization to a proper standard. Your directors called a meeting in Hamilton in April last to endeavor to form a standard rate of wages and conditions for the Province. This meeting was well attended by members from Stratford through to Niagara Falls, and I am glad to report that this meeting was the means of keeping the wage question within reasonable bounds and averting labor difficulties in some parts of the Province; and I would suggest that the question of wages and agreements be brought up at this convention.

No London Members

I wish to call your attention to the fact of there being no membership from London in our society. This is regrettable indeed, and would suggest that some means be taken to gain some members from this city. It has been well represented in the past and there is no good reason why it should not be represented in the future.

The members of the trade in Hamilton have not seen fit as yet to support your society as it is well able to do, although your directors have made reasonable efforts to secure their membership. The effort, if continued, will, I feel, be fruitful of results as they have shown a sympathetic feeling toward this society.

Encouraging Report From Niagara Falls

Your directors have been in communication with the craft in Niagara Falls.
(Continued on page 19)

Need for Real Co-operation is Evident

Team Work Which Begets Confidence is Needed in Plumbing Industry—Considerable Progress With Hamilton Craft—Niagara Falls and Border Cities Also Coming Together

Report of Secretary G. F. Frankland, before 10th Annual Convention Ontario Society D., S. & H. E.

ON this the occasion of the tenth annual meeting of the Ontario Society of Domestic, Sanitary and Heating Engineers, it is with considerable pleasure that I submit for your consideration my report of the society's affairs for the past year. For, gentlemen, this marks a decade in the life of our society. Not very long ago, as one looks back to the year 1910, when, through the efforts of a few who are still spared to us, the foundation was laid for our society, so that in 1911 we became an incorporated institution in the Province of Ontario, with a view to promoting the business of heating and sanitation, to organize those persons who are qualified therein in order to allow these trades to insure a standard of efficiency for the protection of the public and for the persons engaged in such business.

The same principles that guided the action taken in 1911 are still maintained by those in charge of the affairs of the society, to-day, and will, I hope, be continued in the future. To secure the enactment of a provincial plumbing code for Ontario was one of our chief aims, and while this still remains in abeyance we have seen a most satisfactory proposed provincial regulation compiled and approved by the provincial health authorities and adopted by numerous municipalities throughout the province, as our good friend, Mr. John Wright, chairman of the Sanitary Committee, will enumerate.

Changing Field of Operators

Looking backwards one is forcibly struck with the ever changing field of operators that engage in our business, many here to-day and gone tomorrow, others who last several years, and seemingly make no great progress in a commercial way, while the few who have been established for some time are only able to continue their activities by the closest and keenest competition that one can imagine.

To overcome this ever-changing and incessant upheaval of inexperienced tradesmen in business affairs and to bring about if possible a more settled and prosperous business requires the co-operation of all engaged in the industry, including the journeymen, wholesalers, manufacturers, and ourselves. By co-operation I do not mean the usual kind of stand-back spirit and let the other fellow do it, but a whole-hearted effort on the part of everyone who wants to improve the industry for the sake of their fellowmen. Team work and co-

operation that beget you confidence in the other fellow; something to build with, not tear down, as it has been in the past. Co-operation begets construction, and that is what our calling requires and lots of it. The idea that might is right has proved itself false in the most glaring lesson of the world's history, and co-operation spelled its downfall. To-day in our industry we have on every hand evidence of that old spirit of "to the fighters belong the spoils," and in its wake all you find is destruction of the worst kind, so bad in our particular case that only disaster is the result for one and all.



THOMAS E. ARTHUR,
of Drake, Avery Co., Hamilton, Ont.,
elected Vice-President of the Ontario
Society, Domestic, Sanitary and Heating
Engineers, at the 10th annual convention in Toronto.

In the motto of the Canadian Society of D. S. and H. E., "One for all and all for one," we express the true spirit of co-operation, and not until we have a mutual understanding all down the line, including manufacturers, wholesalers, ourselves and labor, for what is good for one is likewise good for the others, and vice versa, can we expect an improved commercial condition for our craft.

The question of publishing a bulletin or association organ is one whereby much good could be done and a closer spirit of co-operation created throughout the craft. The need for a medium of this kind is very great, and while trade papers do a wonderful good work in the interests of the industry as a whole, the

more direct benefit desired by the society cannot be obtained unless we are able to establish the policies that are essential to the welfare of the society's members.

Progress in Hamilton

During the past year considerable progress was made with the Hamilton craft, there now being sufficient members in Hamilton to form a local committee.

The border cities have also shown most favorable progress and arrangements are under way to bring the trade together in Niagara Falls.

The local committee situation is one that requires some consideration as to the necessity of having all local resolutions, rules, or agreements submitted to the directors for ratification. This is more forcibly brought to your attention by the recent action of the Border Cities' Association, who, of course, are not a local committee of the Ontario society.

Convention of Canadian Society

The Canadian Society of Domestic, Sanitary and Heating Engineers will meet in Quebec City this year for its twenty-fourth annual convention on June 6th, 7th and 8th. Arrangements for a boat trip are under way and a number have already signified their intention of going this way. A visit to the ancient Capital at this time affords our members an opportunity not to be missed to view the many landmarks and historical features that connect this wonderful old city so closely with the early history of Canada.

I thank one and all for their kindly attention to correspondence, etc., and trust that business will quickly gain its usual stride, and with best wishes for the success of our society and its members.

Montreal's New Hotel

Montreal.—Work on Montreal's new hotel is expected to commence this month, the contract now being awarded. The name of the firm whose tender has been accepted is withheld, pending the conclusion of the necessary legal formalities.

It is understood that Canadian labor and Canadian material will be used in the construction as far as possible and some 2,000 men will in all probability be employed, the majority of these drawn from Montreal and district.

The building cost is estimated at \$6,000,000. The building will contain 1,050 rooms, 30 stores and 40 offices.

St. Catharines Joins Ontario Society

Vice-President Jas. H. Cunningham, Welland, Ont., Attended Meetings to Discuss Industrial Conditions and Trade Extension.

Report of Vice-President J. H. Cunningham, Welland, Ont., before 10th Annual Convention Ontario Society D. S. & H. E.

"AS vice-president of the Ontario Society of Domestic Sanitary and Heating Engineers, I attended a conference of representatives of the trade held at the Connaught Hotel, Hamilton, on April 22nd, 1920. Representatives were present from Stratford, Guelph, Brantford, St. Catharines, Hamilton and Toronto. This conference was held to consider existing industrial conditions pertaining to the plumbing and heating industry. The result of this conference is contained in the president's report.

"I attended a conference of a joint committee of representatives of the Ontario Society of Domestic Sanitary and Heating Engineers and representatives of the manufacturers and jobbers, held in Toronto, April 27th, 1920. The purpose of this meeting was to talk on matters of trade extension in the plumbing and

heating industry. After an interesting discussion the meeting adjourned to meet at a future date for more definite action.

"I also attended a joint meeting of the directors of the Ontario Society of Domestic Sanitary and Heating Engineers and representatives of the manufacturers and jobbers, held in Toronto, May 18th, 1920. The purpose of this meeting was to further discuss trade extension. The result of this meeting is contained in the president's report.

"I attended a meeting of the Master Plumbers' Association of St. Catharines on March 30th for the purpose of having the members of this association join up with the Ontario Society. After a discussion on the benefits of belonging to the parent body a resolution was passed that the St. Catharines society become members of the Ontario Society of

ONTARIO SOCIETY D. S. & H. E. OFFICERS, 1921-22

Officers elected at the 10th annual meeting of the Ontario Society of Domestic, Sanitary and Heating Engineers, Toronto, for the year 1921-22, are as follows:—

President—Thomas M. Maxwell, Toronto.

Vice-President — T. Arthurs, Hamilton, Ont.

Treasurer—H. Weinraub, Toronto.

Secretary—Garrett F. Frankland, Toronto.

AUDITORS—Arthur E. Paddon, Windsor, Ont.; Fred H. Gentle, Toronto; Harry Peter, Stratford, Ont.

TRUSTEES—William Mansell, Toronto; Harry Mahoney, Guelph; G. F. Frankland, Toronto.

CHAIRMEN OF COMMITTEES:
Sanitary—John Wright, Toronto.
Heating—W. F. Clifton, Toronto.
Arbitration—H. E. White, Brantford, Ont.

Legislation—Norman Swanston, Toronto.

Apprenticeship—Geo. R. Baker, Toronto.

Educational—Gordon Stewart, Hamilton, Ont.

Examination Board—The Directors.

Tenth Annual Financial Statement

ONTARIO SOCIETY OF DOMESTIC SANITARY AND HEATING ENGINEERS FOR 1920.

Year Ending January 31st, 1921.

Receipts.		Disbursements	
Feb. 1st—Bank balance	\$ 487 08	Feb. 1st—Provincial Treasurer's	\$ 1 00
Dues received	920 00	Print. and Stationery	43 55
		Directors' Expenses	76 24
		Office Expenses	94 51
		The Can. Society, per capita	200 00
		Delegates' expenses to Evansville	375 00
		Secretary's salary	520 00
		Jan. 31st, 1921—Bal. in Bank	96 78
	\$1,407 08		\$1,407 08

Assets on Hand.

Office furniture, charts, records, stationery and books	\$ 100 00
One five hundred dollar Dominion of Canada Victory Bond	500 00
Cash in bank	96 78

\$ 696 78

THOMAS M. MAXWELL, Treasurer.
GARRETT F. FRANKLAND, Secretary.

ENDOWMENT FUND.

1920 Receipts.

1919 Bank Balance	\$ 71 09
Wm. Schultz	5 00
Robert Fitzsimmons	5 00
Bank Interest	2 29
Interest on Bonds	33 00

\$ 116 38

HARRY MAHONEY,
WILLIAM MANSELL,
GARRETT F. FRANKLAND,
Trustees.

Assets

One Hundred Dollar Victory Bond	\$ 100 00
Cash in Bank	116 38

\$ 216 38

Domestic Sanitary and Heating Engineers. The St. Catharines master plumbers are a live bunch and should prove a boost to the Ontario Society.

"JAS. H. CUNNINGHAM,
"Vice-President."

BURNETT-LARSH MFG. COMPANY CHANGES NAME AND INCREASES CAPITAL STOCK

The Burnett-Larsh Mfg. Co., Dayton, Ohio, has changed its name to the Duro Pump & Mfg. Co., according to advices from President C. E. Burnett. The company has also received authorization from the secretary of the state of Ohio to increase its preferred capital stock to \$600,000, and to issue 20,000 shares of no par value common stock. The company has enjoyed exceptional progress since its organization early in 1916. Its officers are: President, C. E. Burnett; vice-president and general sales manager, C. A. Kuebler; vice-president and secretary, R. S. Shuey; works manager, H. J. Hunt.

Ottawa, Ont.—Plumbing and heating contracts for addition and alterations to club house for G.W.V.A., Cartier and Cooper Sts., are awarded to Holloway & Son, 373 Somerset St.

* * *

Toronto.—Contract for erection of residence costing \$20,000 for H. T. West, 43 Victoria Street: Plumbing and heating, Fiddes & Hogarth, 122 King Street East.

Enjoyable Reunion at Annual Banquet

Officers Active in Past Years Give Present Officers Benefit of Their Counsel—"Relative Values of Plumbing Materials Lower To-day Than Most Other Commodities"—"Epidemics Start at Same Time as Corporation Control of Waterworks"

AN enjoyable reunion of those interested in various branches of the plumbing and heating trades was held Friday evening at Bingham's, Ltd., Yonge St., Toronto, the occasion being the annual banquet of the Ontario Society, Domestic Sanitary and Heating Engineers in connection with the tenth annual convention.

George Clapperton, Bennett & Wright, Toronto, was chairman. Seated to one side of him at the head table were Thos. Maxwell, Toronto, the new president of the society; T. J. Minnes, Brantford, retiring president of the society; F. A. Dallyn, C.E., Provincial Department of Health; John W. Bruce, secretary of the Plumbers' and Steamfitters' Union, Toronto; H. Weinraub, Toronto, the new treasurer of the society, and Kenneth B. Allison, Toronto.

To the other side of the chairman were seated Fred Armstrong, Port Hope Sanitary Mfg. Co.; Roy Belyea, Toronto; F. R. Maxwell, Toronto; J. Bell, the Warden King Co., Toronto; W. J. Wall, the Mott Co., Montreal; D. A. McLulich, Toronto. Alderman Ryding sent his regrets at his inability to be present.

Entertainment

A number of splendid entertainment features were provided by Messrs. Lee and W. J. White, these interspersing the courses at meal time and the brief addresses which followed. At the conclusion of the generous repast cigars were passed and the second part of the entertainment entered upon during which a number of brief addresses were given by those interested in the society. This social event is always looked forward to with much interest as an opportunity is afforded those who have been actively connected with the work of the society in years past to reaffirm their interest and to meet with old friends. Their counsel in meeting to-day's problems is always valuable as well. Thus the spirit of good fellowship and kindred interest which has always characterized former banquets was evident in full measure at the social evening held in connection with this year's convention.

The first toast was to the King, and was proposed by the chairman, George Clapperton.

Relative Values of Plumbing Materials

A toast to our Province was proposed by Fk Armstrong. In his remarks, Mr. Armstrong diverted a little from the subject to point out the relative values of plumbing materials to-day, compared

with prevailing values of most other commodities. He pointed out that the facts showed adequate reason why drastic reductions could not be made in prices on plumbing supplies. He pointed to the futility of becoming hysterical and also to the futility of waiting for a lower market before advocating building operations to be undertaken.

One of Mr. Armstrong's witticisms concerning the Ontario Government caused much laughter. This was a humorous comparison of the "good old days" in the province of Ontario with



H. WEINRAUB,
Acme Plumbing Co., Toronto, who was elected Treasurer of the Ontario Society, Domestic Sanitary and Heating Engineers, at the 10th annual convention in Toronto.

the present when the farmers who are in control of the Government milk cows on the front steps of the Parliament Buildings.

Our Society

A toast to Our Society was proposed by F. R. Maxwell, Toronto, who, in a few brief remarks recalled the time when he had been instrumental in organizing both journeymen and master plumber associations, many years ago. The keynote of his remarks was that all should organize and co-operate for the common good, irrespective of the branch of trade represented.

The new president, Thomas Maxwell, Toronto, responded to this toast, stating that the honor done him in conferring upon him the presidency of the Ontario Society had so taken the wind out of his sails, coupled with the busy afternoon of campaigning, that he was taken a little unawares. He promised that if applied effort would accomplish any-

thing, that the society would make good strides in the forthcoming year.

L. L. Anthes, Anthes Foundry Co., and John W. Bruce spoke to the toast to The Industry.

The toast to Our Guests was proposed by George Baker, in a few well-chosen remarks, and was suitably responded to by Harry Mahoney, Guelph, Ont.

Plumbing in Toronto Schools

J. Bell, the Warden King Co., Toronto, and associated with the Board of Education, spoke briefly of the efficiency of plumbing and heating installations in the schools of Toronto. He stated that these installations were superior to those in schools visited on a recent trip to the United States. He also outlined the work being conducted in Toronto schools in the interests of technical education.

W. Meadows, sanitary inspector, Toronto, and Mr. Owston, James Robertson Co., also made a few brief remarks. T. J. Minnes, Brantford, spoke briefly as retiring president of the association, mentioning his new office of president of the organization formed to establish a Trade Extension Bureau in Canada. Mr. Minnes has been actively at work in the interests of such a bureau in Canada for some time and he deserves the honor of being head of the first organization formed to establish such a bureau. Mr. Minnes emphasized the need for education but pointed out, by the use of a parable, that the higher education was not necessary to make a man a good producer.

F. A. Dallyn, C.E., Speaks

An interesting outline of the work of the Provincial Board of Health was given by F. A. Dallyn, C.E., Provincial Sanitary Engineer. Mr. Dallyn mentioned the fact that research work has shown that epidemics generally started at the same time as corporation control of waterworks was established. He pointed out that it was his belief, borne out by figures, that the condition of water supply was a controlling factor in the spread or elimination of epidemics, coupled, of course, with sanitary conditions.

Orillia, Ont.—Herbert Caswell is awarded general contract for construction of sewer costing \$6,800 for town.

* * *

St. John, N.B.—F. N. Brodie, architect, 42 Princess St., is preparing plans for a school to cost \$175,000. Tenders will be called shortly.

Development of Steam Heating Principles

Functions of Radiator Traps—Various Classes of Radiator Trap Systems—Vapor or Return System Divided Into Three Sections.

Address by E. T. FLANAGAN, of C. A. Dunham Co., Ltd., Toronto, before 10th Annual Convention Ontario Society D. S. & H. E., Toronto

A LECTURE on the development of various principles of steam heating was delivered with the use of lantern slides by E. T. Flanagan, of the C. A. Dunham Co., Ltd., Toronto, to the delegates to the convention of the Ontario Society, D. S. and H. E. The lecture, given at the company's plant, was as follows:

It has only been a few years since the mention of steam heating would bring to the mind of the average person sizzling air vents, pounding, thumping and cracking in radiators and piping. The old-fashioned one- and two-pipe steam systems had this unsavory reputation due to the fact that their construction was such that it was impossible to keep the steam from coming in contact with the condensed steam or condensation, with the result that noise would ensue. The air valve on the radiator was more or less unreliable, with the result that the air contained in the heating system would remain in the radiators and thus prevent thorough circulation in that particular radiator. With the one-pipe system of heating the condensation had to pass from the radiators back to the boiler through the same pipe that the steam passed through on its way to the radiators. This necessitated in the first place an exceptionally large riser pipe and even with this precaution a certain amount of trouble would ensue, due to the water and steam coming in contact with each other while flowing in opposite directions.

With the advent of the two-pipe system, use of hand valves on each end of the radiator and an air valve on the radiator did not improve the situation very much because the steam could pass through the return pipe from the radiator into the return end of another radiator and thus interfere with the condensation passing from that radiator. There were numerous opportunities for trouble and the best of care during installation could not remove these inherent weaknesses.

The Solution

The final solution of this inefficient method of heating was the application of a radiator trap on the return end of the radiator. The radiator trap would pass water and air but closed off when steam came in contact with it. As soon as a reliable radiator trap came on the market, steam heating began to be recognized as the last word in modern heating. The radiator trap system removed all possibility of the steam coming in contact with the condensation, with the

result that the condensed steam or condensation would pass quietly from the radiator through the return system back to the boiler without in any way coming in contact with the steam. At the same time this trap would pass the air from the radiators, which eliminated the necessity of an air valve on each individual radiator.

A radiator trap to perform its functions properly must be:

- 1st—Positive in motive force, yet sensitive;
- 2nd—Large in capacity;
- 3rd—Simple in construction. and
- 4th—Durable.

Mr. Flanagan described the radiator trap made by his firm as designed with a flat valve working against a flat seat. The body of the trap is very shallow; the disc is flat with shallow corrugations. The trap remains wide open as long as water and air are in the radiator but throttles down as soon as steam comes in contact with it until the opening through the trap is sufficiently reduced to permit nothing but the condensation to pass through it. This trap permits absolutely no water to accumulate in the radiators and at the same time if the return piping were open at any given point, it would be found that absolutely no steam was present in the line.

As the natural tendency for steam is to rise, it was found that the supply to the radiators if placed at the top had the effect of producing easier and quicker circulation through the radiators, as the cold air would drop down and out through the trap quicker under this arrangement than it could with the supply connected to the bottom of the radiators.

The quick opening feature of the radiator valve made by this firm, whereby the valve is opened or closed with less than one turn of a lever handle, making the valve a great improvement over the old-fashioned wood wheel valve requiring half a dozen turns to open or close, was also described.

Classes of Radiator Trap Systems

Radiator trap systems can be divided into two general heads:

First—Low pressure vapor or return systems.

Second—The vacuum return system.

The vapor or return system can be subdivided into three heads:

The home heating system, which uses an air eliminator on the end of the return for venting the air;

The return system, which uses a re-

turn trap on the end of the returns; or

The return pump system using an electrically driven automatic condensation pump.

With these various systems, the method of piping and the manner of connecting the traps and valves are the same in every case. The nature of the building determines whether an air eliminator, a return trap or a condensation pump will be used on the return end of the system. The vacuum system incorporates the use of a vacuum pump on the end of the returns, an electrically driven vacuum pump being used if the pressure on the boiler does not exceed 10 pounds. When high pressure is carried on the boiler, a steam driven vacuum pump is then necessary.

If the steamfitter when installing a system as described will use care to get a positive fall in the right direction on all piping, he has eliminated 90 per cent. of the possibilities for trouble. A properly installed system circulates quietly on a pressure, as a rule, not exceeding 3 or 4 ounces and the flexibility in operation makes it a system which can be installed in the smallest residence or the largest office building with absolute assurance of satisfaction to all concerned.

PLUMBING FIRM PAYS DAMAGES

Montreal.—In an action he had taken claiming \$3,500 from T. Latourelle and Sons, Ltd., for injuries received while in their employ, James Howard was given judgment by Mr. Justice Martineau in the Superior Court, for \$670 and the costs.

Latourelle and Sons, Ltd., had contracted to instal the heating system in a building situated at 325 Bleury Street, and workmen had placed different sets of radiators in different parts of the building. One of these fell upon Howard causing him serious injury. He attributed responsibility to the Latourelle Company because the radiator, he said, was negligently placed against the wall, and in such a position that it was apt to slip.

Latourelle and Sons contested the claim and pleaded that if the radiator was in a dangerous position it was because somebody interfered with it after it had been deposited by defendant's workmen.

Justice Martineau said defendant was responsible unless he could prove that the accident was caused by a fault to which defendant was an absolute stranger. In the instance no such proof had been advanced for the defence.

Advise Extension of Apprenticeship Course

Encouraging Results From Course for Apprentices in Toronto
During Past Year—High Average Standing in Examinations—
Scholarships are Granted

Report of G. Clapperton, Chairman of the Apprenticeship Committee before 10th Convention Ontario Society D. S. & H. E.

JANUARY 14, 1920, marked the beginning of a new era in the training of apprentices in Ontario. Through the efforts of the Apprenticeship Committee of the Toronto Society and with the hearty co-operation of the Technical School authorities, a new course of study was added to the curriculum of the Technical School evening classes designed to meet the needs of the apprenticed plumber and steamfitter.

This course was drawn up by the school authorities along lines suggested by the Apprenticeship Committee and in order to show their interest and to get the movement off to a good start they appointed the best of their regular instructors to take charge of these classes. Drafting, which included both drawing and plan reading, mathematics, physics and practical work composed the time-table; one hour each week being allotted to each subject.

Make Lessons Attractive

The principal of the night classes in his instructions to the teachers exhorted them to make the lessons as attractive as possible and to stress the practical application of each point in order to hold the interest of the boys. This principle was adhered to throughout the course and in spite of the late start and the disorganizing of the classes by the influenza outbreak, much valuable work was accomplished and a good foundation laid for the following year.

In October, 1920, the course was opened again and so numerous were the registrations it was necessary to separate both the plumbers and steamfitters into two further divisions with between twenty-five and thirty boys in each. Had it not been for the scarcity of work which prevailed during the past winter, when many of our boys took up other employment temporarily, 1920-1921 should have been a banner year for the course. As it was, at the annual examinations, which were based on the work covered during the year, over 40 per cent. obtained a grading of 75 or over out of a possible 100, and of those who wrote on the examinations, there were not more than half a dozen who obtained less than the minimum number of marks required to pass. This, we feel, is very creditable to the trade, and if our apprentices are encouraged to attend these classes during the entire period of their apprenticeship, it should result in their becoming, at the expiration of their time,

sanitary or heating engineers in the fullest sense of the title.

Scholarships

Regularity of attendance at these classes on the part of the apprentice is of vital importance if he is to derive the maximum benefit therefrom, and



GEO. CLAPPERTON,
whose report to the 10th convention, Ontario Society D. S. and H. E., as chairman of the committee on apprenticeship is presented herewith.

with this in mind, the Toronto association founded two scholarships of fifty dollars, one for each trade, to be awarded to the boy who showed the greatest all round improvement in his work during the term. This method of awarding the honor rather than awarding it to the student making the highest percentage, placed all boys on an equal footing and was found very effective in maintaining a voluntary regular attendance. As a further check, the secretary of the association was furnished with a copy of the monthly attendance record by the school authorities, which he forwarded to the various employers, with the request that they bring pressure to bear on any delinquents, and between the two methods a good attendance at all classes was maintained without great difficulty.

While this movement is yet in its infancy and still has many corners which

will be rounded off as we gain experience, yet so much apparent good has already been accomplished, and the possibilities for even better results are so evident, that we would strongly recommend that similar classes be inaugurated in all cities throughout the Province where the necessary facilities are available.

PROGRESS IN TRADE EXTENSION

(Continued from page 14)

and the reports coming from this quarter are encouraging. With a little further effort no doubt they will also see their way clear to support the Ontario society.

You will notice by the treasurer's report that we have maintained a bank balance. Our society should have a greater revenue to allow of expansion of work. The lack of capital is a handicap which is felt at times, and I have no suggestion to make as to the means of increasing the revenue of this society at this time.

I take this opportunity of thanking the members of the Ontario Society of D. S. and H. Engineers for the honor they have bestowed upon me by electing me their president for the past year. I also wish to thank the members of the Toronto society for their help and co-operation in the many problems we have had to deal with. My term of office has been a pleasant one as well as one of education and inspiration; it has also been the means of my making the acquaintance and friends of men that are showing a spirit of unselfishness and good-will to the plumbing trade in general. I anticipate with pleasure the happy moments in the years to come while looking back at the time I had the honor of being president of your society.

(Signed) THOS. J. MINNES,
President O.S.D.S. & H. Engineers
1920-1921.

PLUMBERS MAKE CONTRACT

Montreal.—A contract has been signed by the Master Plumbers' Association and the National and Catholic Plumbers' Union for the forthcoming season. The terms of the contract are the same as last year, the wage being fixed at 75 cents an hour for first-class plumbers and steamfitters, and 70 cents for those of the second class, and 60 cents an hour for helpers.

Some Important Sanitary Legislation Suggested

Relations of Sanitary Committee With Ontario Government Concerning Plumbing Regulations—Report re Effect of Drain Air on Pipes—Sanitary Regulations Should Be Enforced by Housing Committee—Suggest Regulations re Minimum Heat.

Report of John Wright, Chairman of the Legislation and Sanitation Committee, before 10th Annual Convention Ontario Society Domestic, Sanitary and Heating Engineers

GENTLEMEN: In presenting my report today as chairman of this society, an honor which has been conferred upon me by you through six successive terms, permit me to express my keen appreciation of your confidence in me and the honors conferred by your votes in the past.

In laying down the burdens of office I shall try to be brief in expressing not only my sentiments, but in giving you a statement of some of the work that has been done in the past year.

This society has evidently made itself felt in public affairs and has produced an impression which has been finding expression in journals, mostly connected with public health work, during the past two years.

It is recognized in all cities that the care of the health of the people is a little outside other things and the laws are rightly more drastic in respect to this.

Common sense is the ability to judge values, to know a great thing from a small one. So at the commencement of the year 1920, after the grand campaign which our representatives put up throughout the city of Toronto, which showed results by answering the question of getting one of our representatives in council and than on to the board of health, which proved the weight of influence our organization carried with the people in landing our friend Alderman Frank Maxwell on to the above board, who on the first sitting of the board proved that he had a mind of his own, again for the year 1921 going higher and becoming chairman of the board of health which has the care of a population of over 585,000.

Re Provincial Regulations

In the early part of the year, 1920, I had an interview with Mr. Rollo, the new Minister of Labor and Health, in company with Mr. Bruce, in reference to Provincial regulations, going into full details, showing him that it would be better for Mr. Dallyn, provincial sanitary engineer, who drafted same, to go before the new cabinet, making them acquainted with the circumstances from start to finish. The minister was making arrangements for the explanation to come from our side, which we did not think good judgment, the new government being strangers to the past conditions, it would be like starting all over again. It was a Bill No. 64, George V, 1916, introduced through the House by the late Hon. Mr. Hanna, to give the provincial

board of health the power to amend Schedule "B," Sections 14, 15, 16, 17, 23, 24, 25, 26, 27, and 28, passed by the provincial board of health May 6, 1918, waiting approval of Lieutenant-Governor in Council.

Under and by virtue of the authority conferred by revised Statutes of Ontario, Chap. 218, Sec. 8, s.s. (d.d.) and through amendment of Schedule "B" Public Health Act.

That health is a question of the moment, no one will dare deny, and the Ontario Government must play its part. It is the duty of the Ontario Government to have a well organized and equipped engineering department of health which shall strengthen and assist the municipal departments of health and civic councils to establish conditions by standardization which would result in a marked improvement in the general health of the entire community by which the people of every class would benefit.

The most important problem in the interests of the health of the community is undoubtedly the adopting of efficient methods of sanitary plumbing, heating and ventilation, therefore it becomes our duty to still seek and obtain legislation along these lines if we would protect and prolong the life of our people.

Action of Drain Air

The report made by special committee on the action of drain air in causing the deterioration of soil, waste and vent piping in buildings touches upon the questions of expansion and contraction of house-drainage lines, shrinkage and settlement of buildings, relative cost and economy of the various materials which are at present used. The report makes it clear that drain air exerts a strong corrosive influence upon the internal walls of house-drainage piping. It is urged by said committee that materials must last longer than the buildings if modern plumbing is to be classed as sanitary. Materials which have lasted only 15, 20 or 25 years are unsuitable and steps should be taken to prevent the use of all materials which have not stood the test of time.

In regard to the regulations governing the installation of sanitary conveniences, of the Province of Ontario under the Bill No. 64—1916 which is shown in the 36th annual report of the Provincial Board of Health.

These regulations should be enforced to work in conjunction with the Ontario Housing Committee, as the outside municipalities are in want of said regulations. We are in hope that at the sitting of this

coming sessions of the House of Parliament that the above regulations will come into force in the face of all the opposition that has been brought to bear on same.

Dr. Cunningham's Amendment

One of the worst offenders was Doctor Cunningham, of London, who got a resolution through the Ontario Municipal Association to amend the above and it reads like this:

Whereas the proposed Provincial Board of Health Plumbing Regulations provide for back venting and other regulations not in conformity with the best modern practice as provided by the recent regulations of several of the larger American cities;

And whereas the costs incurred by the said regulations are excessive and the regulations unnecessary and vexatious:

Be it resolved that this association petition the Provincial Government to withhold its approval of the Proposed Provincial Board of Health Plumbing Regulations and amend the regulations, giving municipalities the power to regulate.

In 1917 We Were Seeking the Licensing and Regulating of Steamfitters

As regards steam boilers and their installation:—They, it is true, properly come under regulations as to construction and inspection by the Hon. Minister of Public Works, but, the heating and ventilation of premises which comes under "public health generally" should be taken care of by the Department of Public Health, who should take advice from the Provincial Board of Health—according to the Public Health Act, Section 6 (b)—and under a by-law similar to that on Plumbing and Drainage (as the heating and ventilation is done by a master plumber in the majority of cases outside of hot air furnaces) and if a simple and practical regulation were drafted, so as to thereby make our dwellings fool-proof against accidents (from which Toronto has already suffered) I feel quite certain the public would be satisfied, for the city could issue separate licenses, if thought desirable, for the same. But was told by those in power, who make the statutes, nothing doing. But we never lost hope and right away a minimum standard was produced, feeling that the Hygienic Division, through the city of Toronto, would demand it some day. Which it surely did, giving a statute to build upon in the future.

Municipal Amendment

In the early part of the year of 1920 in reference to amendments and more

power for the Medical Officer of Health which was forwarded to Alderman Nesbitt, who was chairman of the Local Legislation Committee of the Council.

A draft of which we will read just referring to the points which touch our craft.

At the request of the Finance Commissioner I have had under consideration the necessity for additional legislation and authority to deal with problems which are met with quite frequently in carrying on the work of this Department, and in that connection I am submitting herewith a report embodying the amendments, etc., required. The legislation, part that concerns us, asked for, may be summed up as follows:

1. Amend P.H.A., Sec. 2 s.s. "K" to define "owner" as the person for the time being receiving the rent."

2. Sec. 6, s.s. "B"—Provincial Board to advise officers of Government re heating of premises.

Sec. 2, s.s. "K"

This section defines "owner as the..... "person entitled in his own right"to receive the rents, issues and profits of any property." It is a very difficult matter, in the case of a prosecution or where the person notified disputes liability, to obtain evidence that he is entitled in his own right to receive the rents and profits of the property. I much prefer the definition used in previous acts, as follows:—"Owners," means the person for the time being receiving the rent of the lands or premises in connection with which the word is used, whether on his own account or as agent or trustee of any other person, or who would so receive the same if such lands or premises were let, and would recommend that sub-section "K" be amended accordingly. Got the amendment which was under Bill No. 197, 1st Session, 15th Legislature, 10 George V, 1920.

Sec. 6, s.s. "B"

This section states that it shall be the duty of the Provincial Board to "advise the officers of the Government in regard toheating, ventilation of premises." Many complaints are received every day during the late fall, winter and early spring regarding the lack of heat furnished in apartment houses, as well as in houses where the upper flat has been sub-let and which is heated by the same furnace as downstairs, but where heat to the upper flat can be controlled by the occupant of ground floor.

In many cases we have found that practically no heat was furnished, and also in many cases insufficient heat was given, even where there were young children or sickness, and where it was absolutely necessary in the interests of health that a proper degree of heat should be maintained. As there is no specific authority in the act to deal with such cases, I would recommend that the Provincial Board be requested to advise the officers of the Government that the necessary authority be embodied in the act, and beg to submit the following draft clauses as a basis for their guidance:

(1) "Any premises used as a place of human habitation, factory, workroom, warehouse, public conveyance, school, or other place of assembly, shall be sufficiently ventilated, and a proper degree of temperature (as determined by the Medical Officer of Health) shall be maintained at all times such premises are in use or occupied, so as to protect the

health of the inmates or other persons using, or frequenting such premises."

(2) "The owner, or other persons having charge or control of the heating or ventilating apparatus in connection with any premises, shall be responsible for the maintenance of a proper degree of temperature at all times such premises are in use or occupied."

This sec. 6, ss "B" they would not amend but we still had hope that it would come up again in 1921, which it did under a bill No. 73. An act to amend the Municipal Act for regulating, controlling and inspecting the installation of all hot water and steam heating plants. A bill we tried to get in 1917, introduced by the Hon. Mr. Crawford, M.P., which had its first reading Feb. 18, 1921.

March 8th, 1921. On this date Cor-



JOHN WRIGHT,

Retiring Chairman of the Committee on Sanitation and Legislation, Ontario Society D.S. and H.E., whose report is presented herewith.

poration Council, Mr. G. R. Geary appeared before the Provincial Municipal Committee, giving to bill No. 73 second and third reading.

Putting on the statutes an act that the whole province through the different municipalities of Ontario can enlarge on in connection with regulating, governing of installations, similar to our plumbing proposed provincial by-law.

DEPARTMENT OF PUBLIC HEALTH 1920 Synopsis of Work Done—Plumbing and Drainage Division

Applications for Inspections:	
1918	10,638
1919	16,425
1920	16,959
Inspections Made:	
Plumbing	13,210
Drainage	6,901
Smoke Tests	2,756
Totals	22,867
Correspondence:	
Letters	7,142
Notices	7,785
Permits Issued	
Plumbing and Drainage:	
Permits	2,247
Buildings	3,244
Plumbing Only:	

Permits	1,454
Buildings	1,500
Drainage Only:	
Permits	395
Buildings	407
Totals:	
Permits	4,096
Buildings	5,151
Amended plans approved and filed	2,739
Requested plans	5,015
Master Plumbers registered	408
Certificates issued	384
Candidates examined	61
Journeyman Plumbers registered	419
Certificates issued	451
Candidates examined	84
Board meetings	36
Summons issued	38
Local improvements, contracts inspected and finished	41
Local improvements in progress	50

The Hygienic Division of Which we Are Very Proud

In presenting you a brief summary of the work accomplished by this division along the lines of industrial hygiene for the year 1920, I may state that there were cases of plumbing work done by handy-men around factories without inspection and in violation of the Sanitary and Plumbing By-Laws, such as sink wastes untrapped, fixtures without vents, traps unsealed, openings in wastes and vent pipes, resulting in sewer air escaping from the drain into the work-shops and factories. In some places the wastes were found discharging under floor, no connections being made with drains.

There were cases of plumbing improperly installed, and cases of defective plumbing. There were other cases found where closet vents and water closet bends were open and the air vile and offensive.

The above work was corrected, and made right by licensed plumbers. The record which is:—

Premises cleaned	31
Sinks and basins installed	55
Shower baths	3
Drinking bubblers and fountains installed	84
Gases and chemical fumes controlled	32
Trade dusts wholly or partly controlled	102
Plumbing defects repaired	162
Drains repaired	19
Number of yard privies abolished and sanitary conveniences installed	740
Conveniences installed on the assessment plan	44
Defective plumbing repaired and reconstructed, including industries	711
Number of drains repaired	185
New W.C's and urinals (in industries)	79
Basins and sinks (in industries)	55
Shower baths	3
Total number of nuisances abated by this division	5,992
Houses vacated (insanitary)	18
Cellars condemned	19
Houses turned into workshops and storages	61
Houses without city water	7
Water in cellars	51
Apartment houses unsatisfactory	65
Rooming houses unsatisfactory	11
Defective furnaces	44
Dirty closets	39
Gas escaping (illuminating)	41
Water wasting	128
Defective roofs and down pipes	60
Living in shops and workrooms	8
Insufficient light	2
Bad ventilation	30
Unsatisfactory public buildings	2
Complaints not well founded	126
Number of letters sent	1,824
Number of court cases	357

Satisfactory conditions found	2282
Unsatisfactory conditions found	696
Improved conditions which have been affected after notice—exhaust fans, hoods, vents, etc. installed	75
Improved ventilation	61
Improved lighting	8
New lavatories	79

So you see, gentlemen, it has certainly necessitated a lot of remodelling and repair work throughout which, according to the assessment roll, there are over 98,500 buildings in Toronto, and of these over 85,782 are homes. You can see for yourselves what this means in the future to the legal plumbers of Toronto.

Applying For License

We are still being asked if there is any set time when a plumber must apply for his license.

In reply would state that you will find in the Pamphlet No. 102 By-Law, Section 8, the answer to this question.

All licenses granted under this by-law shall be for the current year at the time of the issuing thereof and shall expire on the 31st day of December next succeeding the date of same.

A master plumber must protect the public by legally being licensed, for if he makes any charges for his work, and not licensed, he is receiving money under false pretences, and the journeyman likewise.

Again we recommend that members will be careful in buying large quantities of plumbing brass goods for they will require the name of the manufacturers' stamp on same. We would remind you in ordering piping that you would ask for genuine wrought iron pipe in all cases.

We draw your attention to the combination brass waste and overflow for baths which has been used by the trade which has not confirmed to clause 39 of By-Law 6388. We are also aware that you were unable to procure any other kind, but we are now informed by plumbing department that the manufacturers have in stock the kind required by by-law. Therefore, we would advise you that on and after January 1st, 1921, the plumbing department will demand their use, so do not install any which are smaller in size than 1½" outside diameter, which is 1½" brass tubing size, 18 gauge, Brown and Sharp or 04525 or its equal in substance.

Changes in Plumbing

In reference to some changes that have been made in connection with the installation and the additional fittings in relation with the plumbing of the city of Toronto.

That extra branch on footing of soil-pipe under floor in basement for extra fixture. It has been the practice of putting this in the class of an iron drain making it necessary for a Y and cleaning screw above bend on soil-pipe. It is now being changed so that it is not necessary to add the Y and cleaning screw on old work. The new addition to footing will be in the iron drain pipe class. Extra heavy and tarred.

And also we have decided on a change

in connection with high buildings running 12 stories and over. In reference to main vents there will be 3" cast iron for the 1st four stories and then 4" for the next eight stories and stepping up a size larger for the next eight and so on. The Durham system remains unchanged. Half sizes increasing every four stories up.

We have introduced into our plumbing (for certain classes of work) a single and double combination screwed waste and vent fitting which will be the means of simplifying certain classes of work, also cast iron 1¼ and 1½ screwed P traps can be used in conjunction with same in some cases.

INQUIRIES FROM OUT OF TOWN PLACES IN THE PROVINCE ASKING FOR INFORMATION

In Reference to Municipal and Provincial Affairs

By-Laws, etc.:—Officials from the following towns asked for certain information:—Ottawa, Port Arthur, Brantford, Guelph, Fort William, London, Hamilton, St. Catharines, Niagara Falls, Oshawa, Peterborough, Dundas, Elmira.

A FEW OUT-OF-TOWN INQUIRIES

One was from a city, whom I think are amending their plumbing by-law. They wanted to know why it was necessary to ventilate W.C. bends under floors when we know it is not impossible to syphon some of our later made water closets.

They were informed that the reason for venting these connections in Toronto are as follows:

To equalize the atmospheric pressure throughout the whole system of waste pipes, so that no dead ends may be allowed through the system, where the non-action of pure oxygen would allow the pipes to deteriorate, and the wiped joint on bend in particular to corrode and eventually cause a leak. You will readily see that with fresh air inlet on your drain, and fresh passage through the soil and waste lines of the outside air will prevent deterioration in metals contained in same.

Another one from out of town which was explained last year was in reference to local board of health. Was it legal for aldermen to sit on the board?

In taking the above up with the law clerk in charge of the Municipal Act, and his opinion is that the amendment to the act 1919, chapter 46, section 2, when read in with the amendment of the year previous makes it very clear that as the act stands now a member of the council may sit on the local Board of Health.

Legislation re Heating

The Legislature have now a bill before them to authorize municipalities to enforce minimum standards for hot water and steam heating systems of premises. This is a matter needing attention. About half the homes in Toronto with hot water systems are inadequately heated, and buyers of these houses do not find it out until they have tested the system themselves. When the hot-water

plant of seven-room dwellings costs about \$1,000, the incentive to the speculative builder to skimp the radiation is very strong, Toronto, at least should have a by-law enforcing radiation at least 25 per cent. larger than the so-called trade standard; the placing of not more than three radiators on one pipe-line; the use of only large size feed-connections into the radiator, allowing maximum circulation. The usual trade standard for radiation is one square foot for every 60 cubic feet of room area, one square foot for every ten square feet of exposed wall, and one square foot for each square foot of outside window or door. But so often the construction of the house is poor, the windows draughty, or the circulation defective, that the heating is insufficient. It is safe to say that Toronto has had considerable mortality arising out of "barn-like" hot-water heated houses, and the inspectors should have as much right to enforce certain reasonable minimums of heating capacity as they have to require efficient plumbing.

BILL

An Act Respecting Liens of Mechanics and Wage Earners, Supply Men and Others

Bill introduced by Mr. Sinclair.

The above bill No. 114 received its first reading in the House on the 18th of February, and I am credibly informed has been put in the hands of a special committee who are to consider it fully in detail at the close of the present session during the interim and report to the House at its next session their opinion thereon. It will therefore not receive its second reading this year and will therefore not be voted upon or become law before next year.

Minister of Health Wants Support

March 21st, 1921.—Met the Hon. Mr. Rollo, the Minister of Health for this Province, in reference to the proposed sanitation and plumbing regulations, to explain to me what support he was obtaining from the different M.P.'s and local boards of health of this Province who were approached by the various members of our organization, throughout the Province, who had promised at our last convention that they would take upon themselves this duty of getting in touch with their representatives of their home town and local boards of health. In fact we have some letters from these very same members, impressing on us that they had carried out, through the new Government, that said duty and up to date I find that not one of these said M.P.'s or boards of health have done a thing and labor which was going to do so much is in the same box as far as their representative is concerned. So, gentlemen, you see without the assistance and support of the above M.P.'s and boards of health we are not making the progress that we should. We have circulated over 500 copies through the different channels. So you see, gen-

(Continued on page 25)

Changes in the "Gas Inspection Act"

Unit of Measure is the Cubic Foot or by British Thermal Unit if Sold by Heat Units—Regulations re Installation of Meters and Inspection

A NUMBER of changes are made by an act to amend and consolidate the Acts respecting the Inspection of Gas and Gas Meters, as introduced at the present session of the Federal Parliament. The Act is reproduced in full as follows:

An Act to amend and consolidate the Acts respecting the Inspection of Gas and Gas Meters.

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

Short Title

1. This Act may be cited as The Gas Inspection Act.

2. In this Act and in any regulation made thereunder, unless the context otherwise requires,—

(a) "contractor" means any company or person agreeing to furnish gas to any purchaser;

(b) "Department" means the Department of Trade and Commerce;

(c) "gas" includes natural as well as manufactured gas;

(d) "inspector" means any officer appointed under the authority of this Act;

(e) "meter" means gas meter, and includes every kind of machine, apparatus or instrument used for measuring the quantity of gas or the calorific power of gas supplied to a purchaser;

(f) "Minister" means the Minister of Trade and Commerce;

(g) "purchaser" means any person to whom gas is sold;

(h) "regulation" means any regulation under the provisions of this Act;

(i) "verified meter" means a meter that has been verified and sealed in accordance with the provisions of this Act and of the regulations. s. 2. Am.

Regulations.

3. The Governor in Council may from time to time make such regulations, not inconsistent with this Act, as are necessary for giving effect to its provisions; and,

(a) for determining the calorific power of gas and establishing standards therefor;

(b) for defining the methods of making the tests prescribed by this Act and the places where such tests shall be made, and for defining territorial districts;

(c) for declaring the true intent and meaning of this Act in all cases of doubt;

(d) for prescribing how the units of measure mentioned in this Act shall be determined;

(e) to provide for the custody of any apparatus, stamps or supplies used or required for the purpose of this Act or of the regulations;

(f) to prescribe the duties of officers appointed for the purposes of this Act. s. 3. Am.

Units and Standards

4. (1) The unit of measure for the sale of gas by quantity shall be the cubic foot.

(2) The unit of measure for the sale of gas by heat units shall be the British Thermal Unit.

(3) The standard apparatus necessary to establish the said units shall be deposited and maintained in the Standards Laboratory of the Department of Trade and Commerce, and shall form part of the system of standards of measure and weight established by the Weights and Measures Act. ss. 4, 5, 6. Am.

Registration.

5. No distribution system for supplying gas to any purchaser shall be operated until the contractor has obtained from the Minister a certificate of registration for such system. Such certificates shall expire on the thirty-first day of March in each year. New.

Inspection.

6. (1) The contractor may at all reasonable hours enter the premises of any purchaser to whom he may be or has been supplying gas, for the purpose of

(a) inspecting and testing all piping, fittings or apparatus for the conveyance, measurement or consumption of gas;

(b) ascertaining the quantity of gas consumed or supplied;

(c) changing or removing any piping, fittings, meters or other apparatus belonging to the contractor.

(2) The contractor shall be responsible for, and shall immediately repair and make good all damage caused by such entry, inspection, testing or removal. New.

Pressure.

7. The contractor shall from time to time report to the Minister what the minimum service pressure is, and shall provide, free of charge, gas and piping and all other reasonable facilities at such place or places as the Minister may designate, for making such tests of gas and meters and other apparatus as the Minister may deem necessary for the purposes of this Act. New.

Officers.

8. (1) There may be appointed for the purpose of this Act a Director, together with such assistants as may be deemed necessary. Such director shall have the direction and general supervision of the work of gas and gas meter inspection throughout Canada, and shall have the custody of all the standards for gas measurements and of all laboratory equipment. New.

(2) In each gas inspection district in Canada a district inspector with such assistants as may from time to time be found necessary may be appointed, and his duties shall be:—

(a) to have the custody of all measuring, testing and sealing apparatus, all stamps and supplies furnished for use in his district;

(b) to be responsible for the general inspection work of his district and perform such other related duties as may from time to time be assigned to him by the Minister.

(3) Any officer appointed under the provisions of this Act may at all reasonable times enter any premises where gas is being manufactured, distributed from or used, for the purpose of performing any duty imposed upon him by this Act. s. 7. Am.

(4) No person shall be employed or appointed under this section either temporarily or permanently until he has passed a qualifying technical examination, such examination to be held under the direction of the Civil Service Commission. New.

(5) No person shall be appointed, under this section, or shall act as an officer under the provisions of this Act or of a regulation who is a seller of gas or gas meters, or who is employed by a seller of gas or gas meters. s. 9. Am.

9. (1) The quantity of gas supplied by any contractor to any purchaser shall, if either party so desires, be ascertained by means of a meter.

(2) When gas is sold by heat units the quantity of such units per cubic foot of gas supplied shall be ascertained by means of an approved calorimeter, to be used under such conditions and in such locations as may be determined by regulation. New.

(3) No meter shall be installed for use until it has been duly verified and sealed in accordance with regulations established under the authority of this Act. s. 14. Am.

(4) No meter shall be admitted to verification in Canada until the type of meter to which it belongs has received the approval of the Minister. New.

(5) Within six years from each verification and sealing every meter shall be presented by the owner for re-verification and re-sealing, or for the cancellation of the seal by the inspector. s. 18. Am.

(6) No meter shall be verified or sealed by any person who is not an inspector, and no person other than an inspector shall break the seal of any verified meter the correctness of which is in dispute, or, not being an inspector or the owner, shall break the seal of any verified meter. No meter on which the seal has been broken shall be continued in use until it has been re-verified and re-sealed. s. 55. Am.

(7) In every case the owner shall keep every verified meter that is in use in good repair and shall be responsible for the due inspection and testing thereof, and except as herein otherwise provided, shall pay the fee lawfully chargeable for such inspection, and shall be liable for all penalties incurred with respect to such meter. He shall keep a record of all meters in his possession, giving their location and all tests made thereon, which record shall be open to the inspector during business hours and from which the inspector may make such extract copies as he may require. s. 24. Am.

(8) The contractor shall notify the District Inspector without delay of any change of location of any verified meter from one inspection district to another, and also of the number, mark or other description of any verified meter that may be sold, scrapped, destroyed, burnt or lost. New.

Disputed Tests.

10. (1) If at any time the contractor or purchaser is dissatisfied with the condition or registration of any meter, the inspector shall, at his request and upon depositing with such inspector the prescribed fee, make such tests as are necessary to show the condition of the meter. Tests made under such circumstances shall be designated disputed tests. Disputed meters found to be correct shall not be re-stamped, but may be continued in service for the unexpired period indicated by the date on the seal that was on the meter immediately before the disputed test. s. 28. Am.

(2) The inspector shall issue to the requesting party a disputed test certificate showing the result of the disputed test, and shall give a duplicate thereof to the opposite party. The cost of such certificate shall be borne by the party against whom the decision is given. If either the contractor or the purchaser is dissatisfied with the finding of any inspector, the inspector shall, if so requested in writing by such dissatisfied party, refer the matter to the Director, and the decision of the Director thereon shall be final and conclusive. s. 29. Am.

(3) If on a disputed test the meter is

found to register with an error greater than that permitted by regulation, such error shall be held to have existed for a period of three months, or from the date on which the meter was last sealed if the said sealing took place within three calendar months previous to the disputed test, or, in the event of the meter being more than three months past due for re-verification, then from the date on which it should have been re-verified, and the contractor or the purchaser, as the case may be, shall be entitled to the amount represented by the full error of the meter. s. 22. Am.

(4) The owner of any verified meter may have it re-tested upon paying the prescribed fee, and shall have the same right to appeal to the Director. s. 29. Am.

Fees.

11. (1) All fees connected with the testing of gas and gas meters shall be determined from time to time by the Governor in Council and published in the Canada Gazette. Such fees shall be regulated so that they will, as nearly as may be, meet the cost of carrying this Act into effect, and all fees received under this Act shall be accounted for and paid to the Minister of Finance at such times and in such manner as the Minister of Finance directs. s. 48. Am.

(2) All fees shall be due and payable at the time the verifications are made, and shall be paid before the certificate is issued. The Inspector shall affix to the certificate an adhesive stamp or stamps equal in value to the amount of such fees, and shall cancel such stamps at the time of affixing the same, and no certificate shall be valid or avail for any purpose whatsoever, unless the requisite stamps have been duly affixed thereto and cancelled. s. 49. Am.

(3) The Governor in Council may from time to time direct stamps to be prepared for the purposes of this Act bearing such device as he thinks proper, and may defray the cost thereof out of any unappropriated moneys forming part of the Consolidated Revenue Fund. Each stamp shall have expressed thereon the value at which it shall be reckoned in payment of the prescribed fees. s. 50. Am.

Accounts.

12. Separate accounts shall be kept of all expenditure incurred and of all fees and penalties collected and received under the authority of this Act. s. 51. Am.

Penalties.

13. Every contractor who refuses or neglects to obtain, within thirty days after the first day of April in each year, the certificate of registration required by this Act, shall be liable to a penalty of ten dollars for each day during which such refusal or neglect continues. New.

14. Every person who, except under the authority of this Act, makes, causes or procures to be made, or assists in making, or who forges or counterfeits, or causes or procures to be forged or counterfeited, or assists in the forging or counterfeiting of any stamp or mark or seal issued for the stamping, marking or sealing of any meter under this Act, or any certificate required by this Act, is guilty of forgery, and shall be punished accordingly, and every one who steals any such stamp or seal is guilty of theft; and every person who knowingly sells, utters or disposes of, lets, uses, lends or exposes for sale, any meter with such forged stamp or mark thereon shall for every such offence be liable to a penalty not exceeding two hundred dollars and not less than twenty dollars; and all meters having on them such forged or counterfeited stamps or marks shall be forfeited to His Majesty, and shall be destroyed or otherwise disposed of as the Minister may direct. ss. 52, 56. Am.

15. Every person who repairs or alters, or causes to be repaired or altered, or tampers with or does any other act in re-

(Continued on page 30)

Apprenticeship Plan is Recommended

Steps to Attract More Apprentices to the Building Trades— National Apprenticeship Council to be Formed

THE National Joint Conference Board of the building trades industry has issued to employers' associations and trades union organizations for their approval an apprenticeship plan. The Conference Board admits that neglect of those actively engaged in the industry to provide education on technical lines; the intermittent nature of employment; the desire of employers to use boys during rush periods only, and the general lack of interest and sympathy between employer and employee, with consequent loss of opportunity for a boy to acquire training essential to make him a good mechanic, have had a serious effect on the industry.

"We are conscious that this matter of vital importance has been neglected, and if we are to bring about a condition which will aim to fulfil the requirements of the industry we must lay down new principles on a solid foundation," explains the Conference Board. "In attempting to solve the problem we are conscious we shall meet with many objections and experience many difficulties. Any plan, to be successful, will need the hearty co-operation of all who realize the seriousness of the problem and the necessity of providing a solution."

First Essential of Plan

The Conference Board first recommends a National Apprenticeship Council, composed of an employer, a journeyman, two architects and two industrial engineers from each branch of the industry, who will set up local councils of a similar character. Indenture forms will be drawn up and boys apprenticed to employers shall be given every opportunity to learn their trade in the workshop, on the job and by attendance at a technical school for one-sixth of his time, without deduction of wages, which shall be not less than two half days a week, and shall be bound to attend evening courses twice a week during school terms.

It is recommended that the local council shall arrange hours of labor, working conditions, rates of wages, and all other matters pertaining to the training of apprentices, and arrange with local educational authorities classes for apprentices. An examination board of not fewer than three members shall be appointed by the council, and shall conduct at stated periods the examination for apprentices.

To Govern Local Conditions

The local council will determine the number of apprentices necessary, and will make the necessary arrangement to transfer apprentices from one employer to another if it is thought the appren-

tice can better acquire special knowledge and experience in this way.

The proposed indenture form is to be signed by the parent or guardian of the apprentice, the apprentice, the employer and the Apprenticeship Council.

The boy will not be permitted to join any society claiming to control his labor, except a labor organization after he has served two years of his term, and he may also join the militia. His hours of labor will not include Sundays, New Year's Day, Good Friday, Victoria Day, Dominion Day, Labor Day, Thanksgiving Day and Christmas Day.

Conduct of Apprentices

Under the terms of the covenant, the first party, who is the parent or guardian, agrees that if the apprentice at any time during the said term is dismissed "for want of good and faithful attention to his duties, or for divulging the secrets of his employer, or for his not readily and cheerfully obeying the commands of the employer, the foremen, or other superiors, or for any reason or justifiable cause whatsoever" on demand, to pay to the employer damages ranging from \$25 to \$100.

Wages are not fixed in the indenture, this being left to local councils, but it is recommended that increases shall be at the rate of \$1 every three months.

The local Apprenticeship Council is to be permitted to retain \$25 a year from the apprentice's wages as a guarantee of his good behavior, and the maintenance of covenants. If the apprentice is dismissed, or deserts his employer, the wages retained shall be considered part payment of damages incurred by the parent or guardian.

QUEBEC CONSIDERS ASBESTOS CONTROL

Quebec.—It is reported that the Quebec Government is considering the question of putting the asbestos mining industry of the province under control in the same way as it has dealt with the pulpwood industry, providing that in the development of the asbestos mines it shall be a condition of the leasing of rights that plants be established in the Province of Quebec for the manufacture or partial manufacture of this material.

At the present moment Quebec Province supplies 85 per cent. of the asbestos requirements of the world, but very little is manufactured in the Province, plants being mainly in the United States.

One hundred and seventy-four thousand five hundred and twenty-one tons of asbestos, valued at \$11,758,234, were shipped from the Province in 1919-20.

Sanitary Engineers on Health Boards

Sanitary Engineer Claimed to be Logical Executive for Public Health Work—Should Have Equality With Medical Officer

MR. E. G. SHEIBLEY, consulting sanitary engineer, Los Angeles, Calif., writing in the *American City*, suggests that more engineers should be engaged in public health work, as members of health boards and as commissioners of health. It is claimed that the sanitary engineer, because of his training and experience, is the logical executive for public health work. While the laws generally permit only practising physicians to hold the office of city or county health officer, in older countries it is the sanitary engineer who performs the executive duties. Generally, however, in all countries the sanitary engineer acts as deputy health officer, and as such may do the greater part of the actual work, but must be subordinate to the doctor of medicine who holds the office. Should not the sanitary engineer be placed in a position of equality with the medical officer and only highly qualified men selected for the duties?

Mr. Sheibley goes so far as to suggest the advisability of naming an engineer as health officer, with addoctor of medicine retained in the position of assistant or consultant. In support of the suggestion Mr. Sheibley says:

"The duties of a health officer may be divided into three classes of work—medical, executive and administrative

(business), and engineering. Perhaps ten per cent. of the duties of a health officer require medical training, and of course no one would trust the judgment of any non-medical man in such problems as the diagnosis of disease and the prescription of treatment or medicine. As contrasted with this limited number of purely medical functions, probably fifty per cent. of the health officer's duties demand an engineering knowledge and experience; while as a rule the general executive and administrative training of the engineer is superior to that of the practising physician in practically every instance.

"On every health board, state and city, the engineer and the doctor should have equal representation. The doctor of medicine is primarily interested in the cure of constitutional disease; the sanitary engineer is primarily interested in the removal of those environmental causes which are responsible for about one-half of the diseases of common occurrence." It is no reflection on the medical profession that only a few practising physicians know the relative advantages of an activated-sludge plant and an Imhoff tank; while such questions, of concern to the community and its health officer, are part of the elementary knowledge of the sanitary engineer."

Sewer and Water Pipe Construction

CONCRETE sewer and water pipe construction was the subject of an interesting talk given before the St. John branch of the Engineering Institute of Canada by W. G. Chace, M.E.I.C. The lecture was illustrated by motion pictures of various plants including views of works similar to the new Spruce Lake Pipe Line Construction.

Mr. Chace, who is vice-president of the Engineering Institute of Canada and president of the Canada Lock Joint Pipe Co., Ltd., was introduced by G. G. Murdoch. Mr. Chace began his address by describing different structures for carrying water with special reference to a paper written by Wynne Robertson, Toronto, and read before the Engineering Institute of Canada at its January meeting. He compared free flowing conduits with those carrying water under pressure, the science of which is relatively newer than the construction of free flowing conduits. He spoke of the different classes of materials used such as wooden staves, banded steel, cast-iron pipes and reinforced concrete.

With a reel of motion pictures Mr. Chace then showed the process of making

reinforced concrete pipes as carried out by the Lock Joint Pipe Co., Ltd.

On the Spruce Lake job they are making 144 feet of 36-inch pipe per day; and it was pointed out that local labor is employed and materials taken from local sources.

Wonderfully ingenious machinery was shown which is used in handling these pipes and which Mr. Chace explained was mainly invented by Mr. Nichols, of the company. Views of the manufacture of reinforced concrete pipe were given from the mixing of the gravel for concrete to the completed pipe at the moment of its being deposited in a trench. Various dredges were used and pictures of the men at the works given.

SOME IMPORTANT LEGISLATION (Continued from page 22)

tlements, it is only a case of explaining same.

Sanitary plumbing is of more real value than medicine. Plumbing provides means for keeping the body, wearing apparel, the house and our streets and alleys clean. Cleanliness means healthfulness. A plumbing system stands for

cleanliness, which also means that the plumbing system prevents where medicine cures, and prevention is more desirable than the cure.

Investigation has shown that in the absence of sanitary regulations and whenever each person is permitted to install a plumbing system according to his own ideas, insanitary conditions are sure to prevail. Shall the standard of plumbing regulations be determined by the person who lives in the house, by the owner, the manager, real estate speculator, material manufacturer, or in conformity with the standard of living and decency?

A great many people still cling to the idea that plumbing codes are created and the laws enacted for the sole benefit of plumbers and the public is made their legalized prey. This idea is kept in motion by real estate speculators, specialty and material manufacturers and others whose only interests are mercenary. No humanitarian, social, moral, financial or sanitary argument can be adduced against the enactment and the standardization of plumbing codes by the government. This will not only eliminate commercially interested individuals and corporations, but any other organization whose interests are purely selfish.

To protect the public from insanitary plumbing and the influence of harmful surroundings caused by reckless competition, the use of cheap and defective material and improper installation, construction, installation and inspection of plumbing.

Another feature that I want to call attention to until we get the proposed provincial regulations is the fact that the government will come into your city to erect a post office or some other building and when same is found not to be in accordance with your code they then tell you that you have no authority over that particular piece of property, in which event, I think, you can refuse to give them entrance to your sewers. If plumbing is not put in in accordance with your city by-law the government will have to give way or follow the proceedings of the local code when there is a difference in the two codes.

In submitting to you the account of my stewardship, and at the same time laying down the burdens and responsibilities of the office with which you have honored me, let me again express to you my heartfelt gratitude for the honors conferred and at the same time extend to the officers and all other interested friends associated with me that gratitude which every man feels who has been nobly assisted in the work. I trust that my successor may have your continued and kindly consideration, your loyal support, and greater enthusiasm in the assistance given him by the individual members as well as by his associate officers.

F. Kelly
Norman Swanston
Frederick Wiles

Chairman of Legislation and Sanitation,
John Wright.

Port Hope Enamelware

PHONE UPTOWN 2760

NIGHT CALL
UPTOWN 5558

HICKEY & AUBUT

PRACTICAL PLUMBERS, GASFITTERS AND ROOFERS

93 TO 99 DOMINION STREET,

MONTREAL. April 8th, 1921. 19

Port Hope Sanitary Mfg. Company, Ltd.,
234 Beaver Hall Hill,
MONTREAL. -

Gentlemen:-

We have just finished the contract for the extension to the Factory for the Berliner Gram-O-Phone Company, this city, in which we installed Five hundred and Ninety-seven (597) "PORT HOPE" Enameled Lavatories and Iron Traps.

You might be interested to know that our Foreman who was in charge of this contract stated that:-

"The quality of material supplied, and the service rendered by your Company enabled him to make the nicest installation in appearance, and gave him less trouble in roughing-in of any contract of a similar size he had previously undertaken".

It gives us pleasure to give you this information complimenting you upon the high grade of your material.

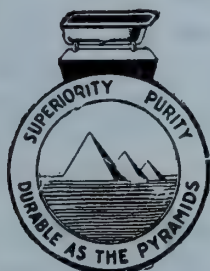
Yours very truly,

HICKEY & AUBUT,

per 

MMcG/TD.

Makes Contracts Run Smoothly



WHEN you are pleased with the goods supplied by a Manufacturer, tell him. He'll like it. That's why we print Messrs. Hickey and Aubut letter and thank them for their consideration.

The fixtures to which reference is made consisted of five hundred and ninety-seven (597) Special Factory Lavatories, and the same number of Enamelled Iron Traps—a beautiful installation.

The goods were supplied through Messrs. Crane, Limited, of Montreal, in accordance with the Company's policy to distribute its products, as a matter of convenience to the Contractors, only through leading Jobbers.

There are two lessons to be learned from this transaction. First, the magnitude and importance of Factory Sanitation. Owners of industrial plants recognize the advantage of good sanitary conditions, and that branch of the business offers a fruitful and profitable opportunity for progressive Plumbers.

The second lesson is, when you are placing an order with your Jobber specify PORT HOPE Enamelware. It gives your superintendent and workmen very little trouble and your customer a great deal of satisfaction.

Port Hope Sanitary Mfg. Company Limited

Factory: PORT HOPE, ONTARIO
TORONTO SHOW ROOMS: 119 King St. East
WINNIPEG OFFICE: 405 Tribune Bldg.

Head Office: ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS: 234 Beaver Hall Hill
HALIFAX OFFICE: McCurdy Building, Hollis Street

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HIGHER PLUMBING STANDARDS

WHATEVER may be the general view regarding the presence of sanitary engineers on local Boards of Health it is certainly important that more responsibility should be placed on the shoulders of the sanitary engineer and an improved status given to the profession. Plumbing, garbage and refuse disposal, water-supply, sewerage and sewage treatment are problems primarily in sanitary engineering, and require constructive engineering capacity to deal with them.

The encouragement of the sanitary engineer by enlarging his functions and putting him in direct charge of the correction of defective sanitation is necessary to secure the improvement of sanitary conditions. He should be the official responsible for a great deal of the preventive work that is needed so as to overcome the growth of evils that are so difficult and costly to remedy. Most of the defects in housing in Canada are due to neglect of control of sanitation. Sanitary inspectors are too often chosen without regard to their fitness as engineers. If we are to have a better trained profession in sanitary engineering we must give more scope for the men who enter it and the higher standards of pay and responsibility that will attract skilled men. This is no reflection on the important part played by the medical profession in municipal work, but a suggestion that their work should be supplemented by engineers having a special training and knowledge in sanitary work. Certainly the present system of control of sanitation is not satisfactory, and the time is opportune for considering whether greater responsibilities and improved status should be given to engineers on provincial and local boards of health.

TO-DAY'S PLUMBING PROBLEMS

A REVIEW of the proceedings of each of the recent annual conventions of the various provincial organizations of sanitary and heating engineers in Canada reveals the fact that not only is the present generation of operators moving to the higher status to which they are entitled as a class, but ample provision is being made for the education of the coming generation of operators so that they will not suffer any handicaps in upholding that status.

This sentiment is evident especially in the pro-

ceedings of the convention of the Ontario Society of D. S. and H. E., the complete report of which appears in this issue. The reports on sanitation and legislation emphasize the fact that the counsel of competent operators is being sought by those in authority. A noteworthy example is the request of the Ontario Minister of Labor for the help of the society members and the plumbing trade papers in framing the plumbing regulations for the province.

An important step in assisting the work of educating the trade to a higher appreciation of their status is the formation of a Canadian Trade Extension Bureau along similar lines to that of the United States, which admittedly has been of much valuable assistance to the trade in that country. It must not be overlooked, however, that the trade papers have, by means of market information on prices and tendencies, and the outlining of display suggestions, advertising and accounting methods, been helping for some time in the education of the trade along such lines. The additional efforts of the Trade Extension Bureau will, however, further this work. At the convention just concluded definite action was taken to establish a bureau in Canada.

Apprenticeship problems loom big when discussing plans for the raising of the future status of the trade. In this connection it is good to note that instructional courses provided in Toronto for apprentices have been well attended and proved valuable.

There are plenty of signs that the plumbing trade of Canada under competent leadership can become an important influence. That is the end to which present effort is being directed.

PROPHYLACTIC PLUMBING?

THAT formidable looking word means "guarding against"; more particularly, through usage by medical men, guarding against disease. Ever since the days of open plumbing every step of progress might be said to have made plumbing still more "prophylactic," from the standpoint of sanitation—of guarding against disease.

But we are thinking of "prophylactic" plumbing in another sense—in the sense of a different preventive service. No modern sanitary engineer gives a place of primary importance in his business to the petty emergency.

We hope to see every sanitary engineer giving such "prophylactic" service—service that guards against frozen pipes and emergency repairs, service that prevents defects, builds good will, and more and greater business, so that about the time "Bill" is ready, through experience, for this larger, worthier work his old job on emergency repairs will have practically disappeared. Do not neglect service. This change of character in a plumbing business comes through attention to quality, efficiency, service.

Reducing Cost of Plumbing Installations

Method Proposed by Jas. Marr, Sr., Calgary, for Reducing Cost of Plumbing Installations in Small Houses—To Test the “Proposed Standard”

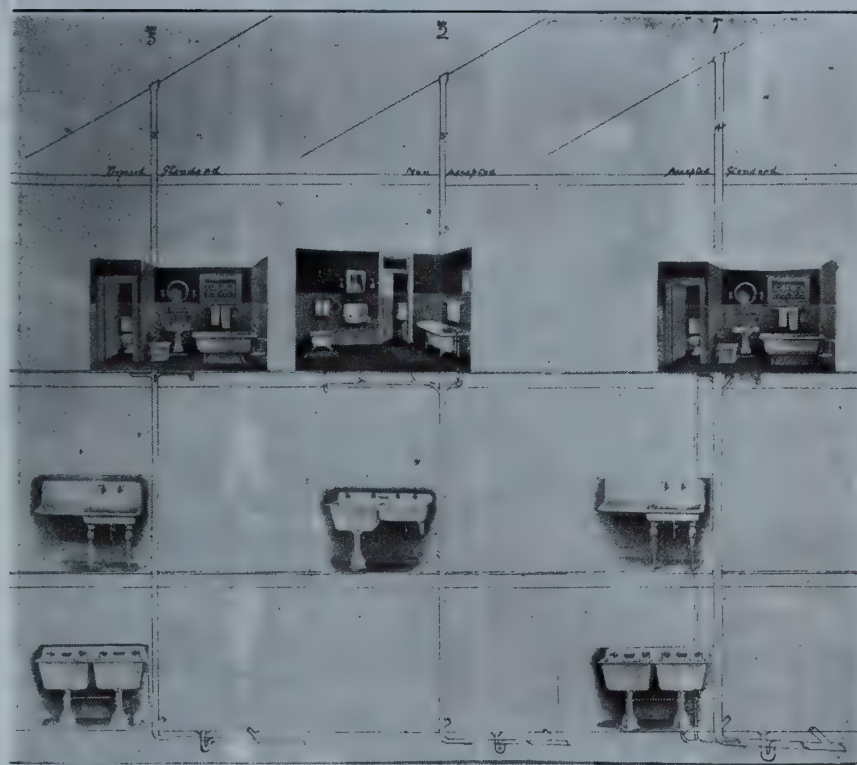
(Address by Jas. Marr, Sr., Calgary, before convention of Alberta Master Plumbers.)

IN dealing with this subject of lowering cost on plumbing installation in small houses, let it be understood that I am speaking to a Western convention and what I have to say would apply more particularly to Western city conditions, where the use of a disconnecting trap on a house drain is hardly known, and where sewer gas in quantity or quality that would be injurious to metals used in plumbing installations is not allowed to exist, owing to the manner of making every connection to our main sewer act as upcast or downcast shaft, or free ventilation. Therefore, what we would have to consider is the prevention of “sewer air” (we will give it this name until we arrive at something different) from entering the house under every day conditions.

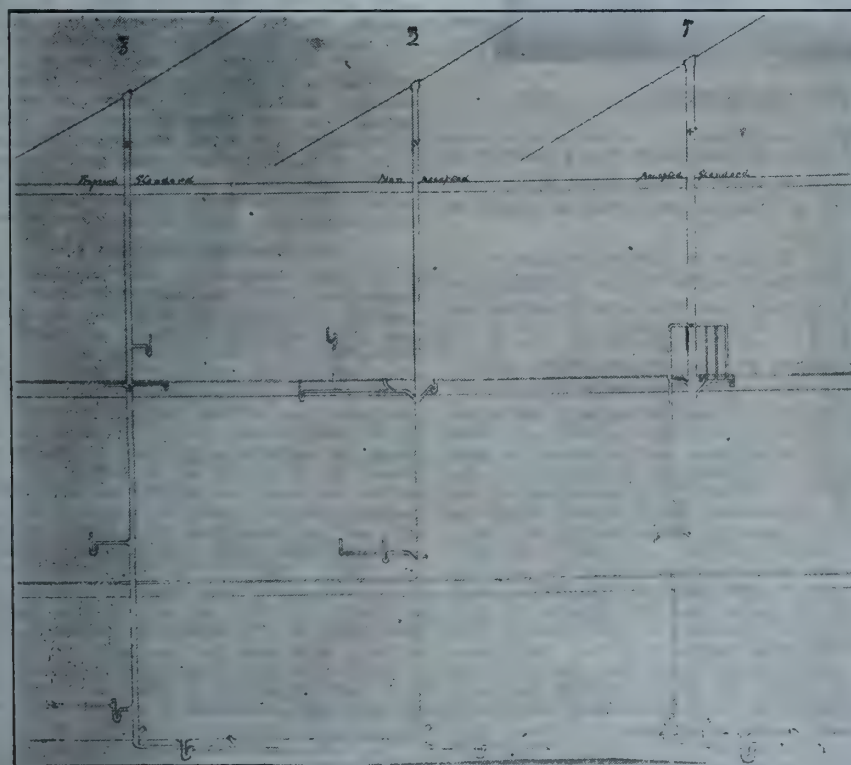
You have here shown three methods of rough plumbing of waste lines on a small house.

Waste of Materials and Labor

The first we will call the “Accepted Standard.” This method is embraced in the Health Laws of our Province, which require a four-inch soil pipe as main stack and drain, with branch connections vented in by the manner shown by drawing. After years of careful study I have come to the conclusion that this method is a waste of materials and labor.



Proposed, Non-Accepted and Accepted Standards, in plumbing installations as dealt with in the address by Jas. Marr, Sr. This shows the plumbing fixtures installed.



Proposed, Non-Accepted and Accepted Standards in plumbing installations as dealt with in the address by Jas. Marr, Sr. This shows the roughing-in work.

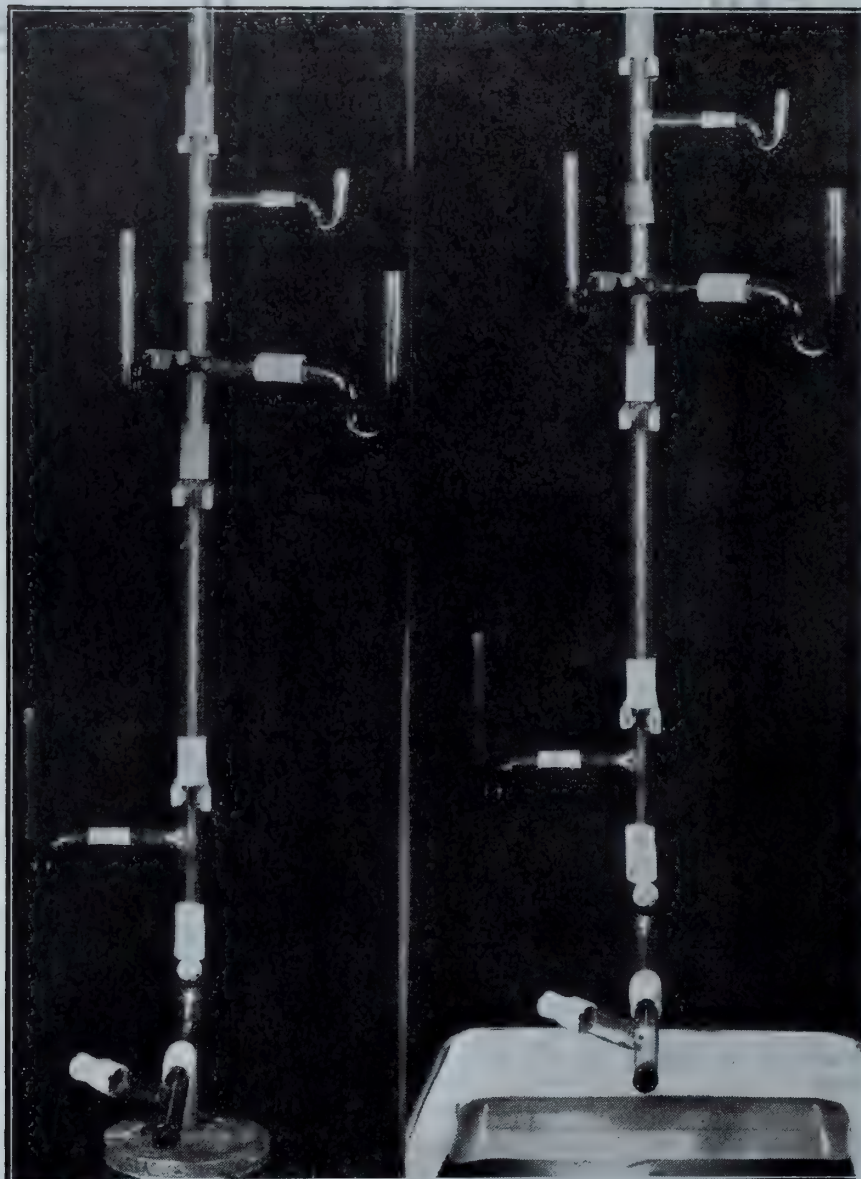
That the fittings now in use are wrong in principle, because in practice they have defects well known to the trade, their liability to choke and their assistance to syphon action condemns them as a proper and safe fitting for practical purposes. Why should we continue a practice knowing it to be bad and not protest?

Non-Accepted Standard

The second we will call the “Non-Accepted,” but was used in the construction of small homes during the late war period by the Government of the United States. The worst we had to say of the first was wastefulness, but in this it is criminal. Look at the basin trap and you can see a perfect syphon, the waste from combination fixture in kitchen is also poor practice. The only good feature in this method is the use of three-inch soil pipe. Had there been sensible fittings used the method would have had one redeeming feature.

Proposed Standard

We now come to the third, which we will call the “Proposed Standard.” The soil stack like number two is three-inch soil, while number one and two had what is termed standard fittings. This method has fittings of a special pattern which it is my purpose showing you, and to demonstrate by the use of glass pipe and



BEFORE AND AFTER FLUSHING

these fittings, that they are right in practice and in art, equal to the standard fitting.

The purpose of this fitting is to eliminate the use of small vents and confine the venting of the installation wholly to the main stack. For the better economy of the system proper planning of the fixtures would have to be considered, that in no case need there be any use for an "S" trap. All branch connections could be run from main stack to a distance not exceeding the diameter of the pipe, giving the pipe the usual fall. In this way the air in horizontal pipe would be changed at each flush and the possibility of syphonage would be nil.

To show that the rough work is no freak I will proceed to install the fixtures and make the job complete.

I think the demonstration and test of the "Proposed Standard" has been of such a nature as to satisfy us in making formal application to the Provincial Board of Health, coupled with that of the

cities that we represent, for a permit to have one or more houses fitted up by this method so that a test could be made in actual use.

I have in mind a further extension of the principle to cover larger installations which we may consider at a later period.

CHANGES IN GAS INSPECTION ACT (Continued from page 24)

lation to any verified meter so as to cause such meter to register unjustly, or who prevents or refuses lawful access to any meter in his possession or control, or obstructs or hinders any examination or testing authorized by this Act, shall be liable to a penalty not exceeding one hundred dollars and not less than fifty dollars, and shall also be liable to pay the expense of and fees for removing and testing the meter and the expense of purchasing and installing a new meter: Provided that the payment of any such penalty as aforesaid shall not exempt the person paying it from liability for any punishment to which he may otherwise be liable upon indictment or other proceeding, or deprive any person of the right to recover damages against such person for any loss or injury sustained in conse-

quence of such act or default, s. 53. Am.
16. Every contractor who fails to keep the records required by this Act, or who refuses to allow an inspector to examine such records and to take such extracts therefrom as he may deem necessary, shall be liable to a penalty of fifty dollars. s. 58. Am.

17. Every person who,—

(a) installs or causes to be installed in any purchasers' service any meter that has not been verified and sealed as herein required; s. 54. Am.

(b) refuses or neglects to present any meter installed in any purchaser's service for re-verification or re-sealing within six years after the preceding verification and sealing, or, being a contractor, permits any such meter to continue in service beyond the said six years, or refuses or neglects to present any meter which has been verified and sealed for the cancellation of such seal immediately after the expiry of six years after it has been so verified and sealed; New.

(c) not being an inspector, verifies or seals or issues a certificate as to the accuracy or condition of any meter after it has been fixed for use; or s. 55. Am.

(d) not being an inspector, breaks or causes to be broken the seal of any verified meter the accuracy of which is in dispute, or, not being an owner or inspector, breaks or causes to be broken the seal of any other verified meter; New. shall be liable to a penalty of twenty-five dollars for each meter with respect to which any of the provisions of this section have been violated.

18. Any contractor selling gas by heat units who supplies gas below the standard calorific power prescribed by regulation shall be liable:—

(a) if the contractor has more than ten gen (HS) shall be liable to a penalty not exceeding eighty dollars for the first offence and double this penalty for each subsequent offence;

(b) if the contractor has more than five thousand and not more than ten thousand verified meters, to a penalty not exceeding sixty dollars for the first offence and double this penalty for every subsequent offence;

(c) if the contractor has more than two thousand and not more than five thousand verified meters, to a penalty of forty dollars for the first offence, and double this penalty for every subsequent offence;

(d) if the contractor has more than one thousand and not more than two thousand verified meters, to a penalty of twenty dollars for the first offence and double this penalty for every subsequent offence;

(e) if the contractor has one thousand verified meters, or less to a penalty of ten dollars for the first offence and double this penalty for every subsequent offence.

For Supplying Injurious Gas.

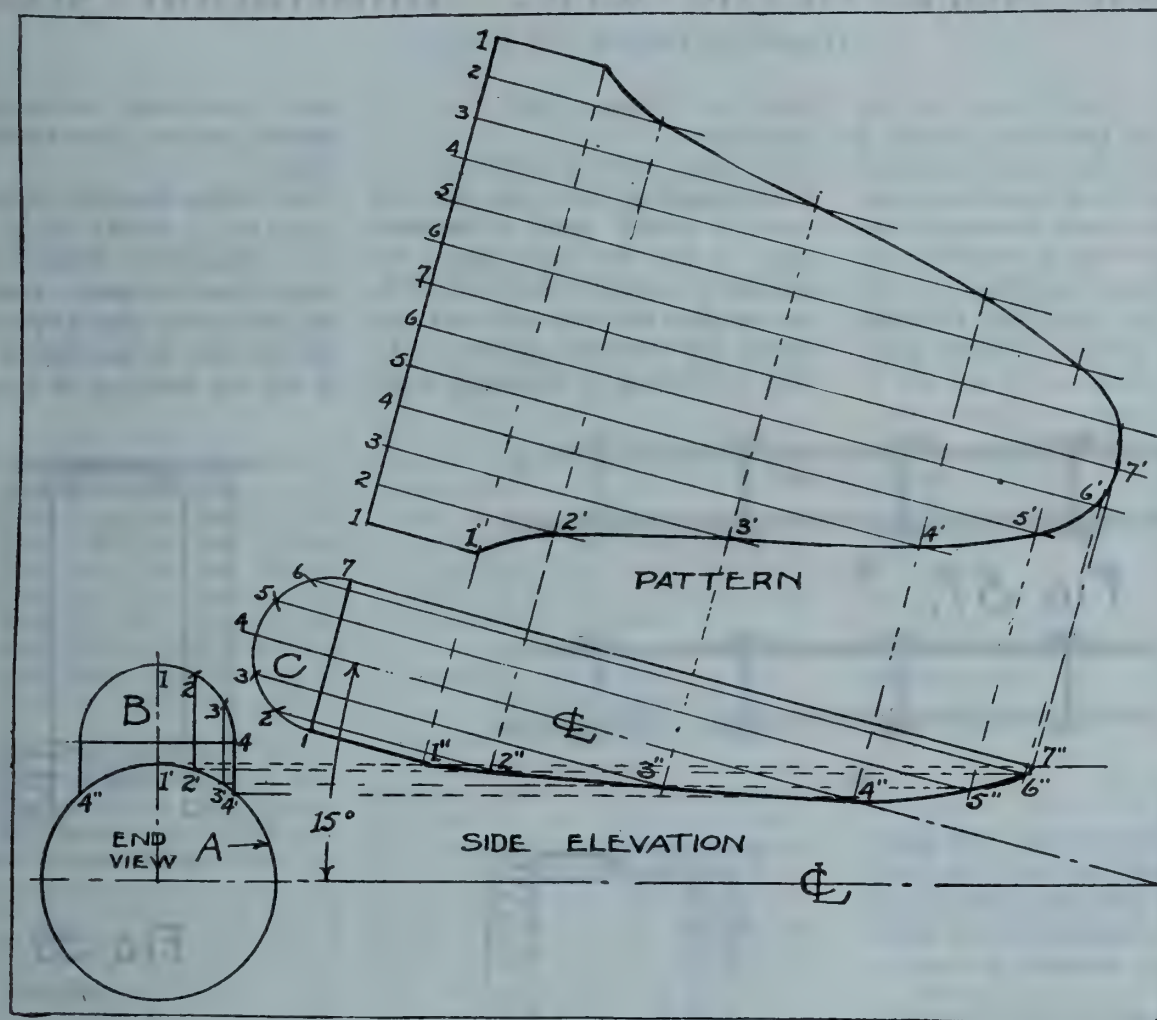
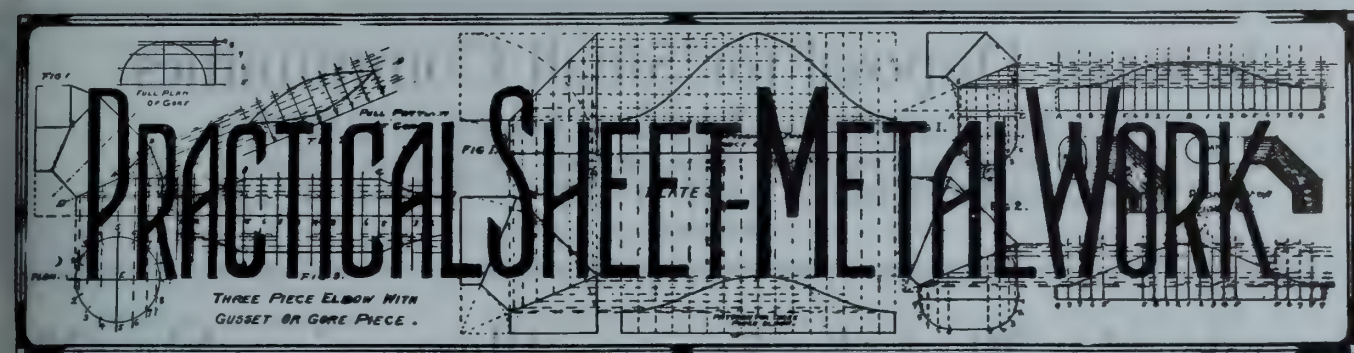
19. Any contractor who supplies any purchaser with manufactured gas containing any trace of sulphuretted hydrogen (H₂S) shall be liable to a penalty not exceeding one hundred dollars and not less than twenty-five dollars. s. 57 (1). Am.

20. Every person who violates any of the provisions of this Act, or of any regulation established under this Act, or refuses or neglects to perform any duty imposed by this Act or a regulation, for which violation no penalty is specifically herein provided, shall be liable to a penalty of not less than twenty-five dollars and not more than one hundred dollars. ss. 7 (3). Am.

21. All penalties imposed under the authority of this Act or of any regulation shall be recoverable on summary conviction, with costs,—

(a) before any justice of the peace for the district, county or place in which the offence was committed if the penalty does not exceed twenty-five dollars; or

(b) before any two justices of the peace, if the penalty exceeds twenty-five dollars. s. 62. Am.



Patterns for 15 Degree Tee Branch

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.

A TEE pattern placed on a 15 degree, the following method is followed:

First draw the end view, making the large circle equal to the diameter of main pipe. Then from the centre lines are drawn, with section B in place.

Observe that this divided in equal parts, and lines dropped down to the circle A, gives the distance the branch B spreads over the large pipe, as 1'-2'-3'-4'.

Then by projecting horizontal lines over from each of these points, we have the altitudinal points or rises between each line.

Next draw the branch side of side elevation, so the centre line is 15 degrees from the horizontal centre line.

Then describe section C to the same diameter as B with all its points, and extend lines parallel with the centre line

of side elevation. Where these lines intersect with the horizontal lines—that is your intersections for miter line as 1''-2''-3''-4''-5''-6''-7''.

Next observe how this side branch pivots by the centre lines, and that no matter what the angle of branch the intersections take place, and this makes the miter line.

Each different angle will make a different miter, but that does not change the method.

To set out the pattern, pick the girth from section C and set off at right angle to center line 4-4'' and from each point in miter line square out lines until they intersect in pattern of similar numbers as 1'-2'-3'-4', etc.

Through these points trace your miter cut, and the pattern is finished, only laps for seaming or riveting and flanging must be allowed extra.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May be Referred to and Studied

Article No. 29 of the Series—Illustration No. 37

(Continued from March 1 issue)

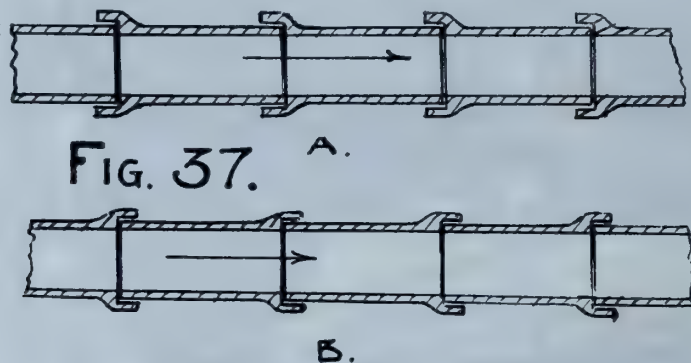
FIGS. 37, 38 and 39 show the plan, cross and longitudinal sections of a modern two story sedimentation tank (or Imhoff) capable of treating the sewage from a population of 200 to 300 people. The walls are of concrete construction and should be reinforced with steel rods at least two-thirds up from the footings—depending greatly upon the nature of the soil and the

hours, and its velocity should be 1.75 ft. per minute.

The sludge digestion chamber should be constructed so that all the sides fall toward a central sump at sufficient angles so that the sludge, during the emptying process, will slide down of its own accord to the outlet pipe, thus facilitating the cleansing operations. In large installations a perforated water

down to the sump, at the same time cleaning the tank sides from deposited sludge.

This sludge digestion chamber is designed for six months' storage capacity, which means the removal of sludge twice a year by means of the upright cast iron sludge pipe which discharges into the tiled by-pass laid at a grade of not less than 1 in 30 direct to the



pressure of earth the wall will have to withstand when the tanks are empty, therefore the structural design of the tank cannot be covered by this work—which will vary according to local conditions.

The tank is 10 feet wide by 15 feet in length and has an inside depth of 19 feet with an inlet and outlet weir, the full length of the sedimentation tank which is formed by the concrete or wooden sludge aprons set at an angle of 60 degrees, overlapping each other. These form the necessary air seal between the sedimentation and sludge digestion chambers. The aprons should be well supported by reinforced concrete beams well tied into the main concrete walls of the tank and should rest on a reinforced concrete beam as illustrated.

This sedimentation tank should be designed so the average flow of sewage through the tanks varies from $1\frac{1}{2}$ to 2

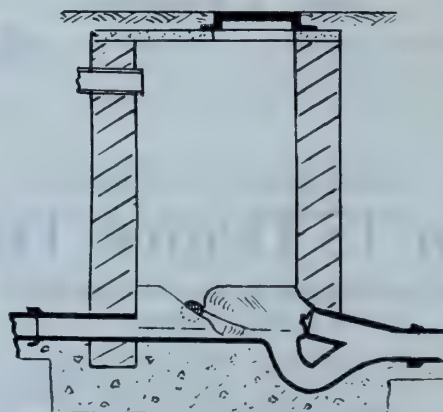


Fig. 38

pipe taken off the water supply main is sometimes fixed around the walls, and when cleaning out the tank the water is turned on and helps to force the sludge

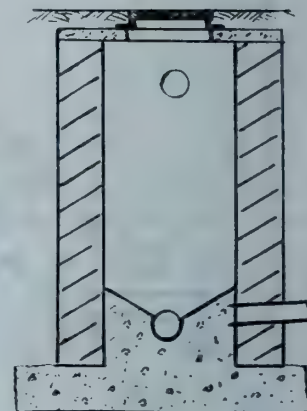


Fig. 39.

valve chamber feeding the sludge beds. The outlet of this pipe should be kept at least six feet below the tank water level so that the tank water head will force the sludge up the upright pipe into the sludge main, discharging onto the sludge drying beds.

Gases are given off during the decomposition of the sludge from this digestion chamber, and ample ventilating space should be provided as shown on the drawing, as pipe and other ventilating methods have proven very unsatisfactory owing to becoming choked by the sludge rising in the tank.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Toronto.—Thos. Pulfer, plumber, has been succeeded by A. T. Thompson.

NEW FIRMS

Hamilton.—Fred Thornton has commenced business at 310 Ottawa St. North.
Toronto.—N. L. Saltzman has commenced business as retail hardware and sanitary engineer at 534 Dundas St. W.

NEW FIRM IN OTTAWA

Ottawa, Ont.—Beeby & Aikins, Ltd., is a new firm organized here to manufacture Beeby Unity ranges and Aikins sanitary furnaces. These two products are said to be the result of two new inventions.

PLUMBERS ASK INCREASE

Peterboro, Ont.—Journeymen plumbers here have notified their employers of an increase of 15 cents an hour in the scale, bringing it up to 90 cents, effective on the 1st of May. The rate has been 75 cents an hour. The increase in the new demand is 20 per cent. Last year the scale was raised from 60 cents to 75 cents an hour or 25 per cent.

A BENCH IN A BATH TUB

By designing a bathtub in such form that its occupant takes a sitting instead of a reclining position, a plumbing-supply manufacturer is able to offer a new article possessing a number of advantages. The entire tub measures only 44 inches long and 30 inches wide, with a well at one end 24 inches deep, and a ledge at the other end forming a seat above which the depth is 15 inches. The well may be used alone for children or as a foot bath, the seat ledge remaining dry.

SARNIA ENGINEER RESIGNS

Sarnia, Ont.—John A. Baird, city engineer, has tendered his resignation to the city council.

WATERWORKS MACHINERY

AT NEWMARKET SMASHED

Newmarket, Ont.—One of the compressors in the pumping station here was completely wrecked. To replace it will cost the town \$1,500. The town water is pumped from artesian wells by compressed air. A valve worked loose on one compressor and before anything could be done the machine was shattered.

NEW PROPOSALS FOR DRAINAGE

Winnipeg.—The Provincial Drainage Commission was instructed by the legislative committee on municipal affairs to draft amendments to the Drainage Act, presenting its views and having due regard to the discussions and conclusions already reached by the committee, with the understanding that the amendments should not go before the legislature until they have been canvassed thoroughly in committee.

NEW YORK PLUMBER PAYS FINE

New York.—A \$10,000 fine—the largest given any master plumber indicted during the building trust investigation—was imposed on the W. G. Cornell Co. for violation of the State Anti-Trust Act. At the same time Edward L. Slosson, a member of the firm, was sentenced to the Tombs Prison for ten days.

Both Slosson and the corporation pleaded guilty several weeks ago to having subscribed to the "code of practice" alleged to be operated by master plumbers in connection with bids.

PLUMBERS ARE OFFICIALS OF NEW WASHER COMPANY

Hamilton, Ont.—In the last issue of the Canadian Gazette it was announced that the Coffield Washer Co. of Canada, Ltd., had been granted a charter. Harry Bloom and Walter C. Brittan, of Bloom & Brittan, local plumbers, are officials of the new company, which will manufacture Coffield electric washing machines. The company has leased the top floor of the Bloom & Brittan building, 16 and 18 Macnab Street North, and the manufacture of the new machine is expected to take place in from four to six weeks. A staff of about fifty men will be given employment.

Harry Bloom is the president of the new concern, and J. L. Coffield, the inventor of the new machine, is a director. The new machine is considered by officials of the company as a new development in washing machine construction.

Mr. Bloom stated that the company was composed of local capital only, and the headquarters of the concern would be kept in Hamilton.

PIECE WORK WOULD RESULT IN POOR CRAFTSMANSHIP

Winnipeg.—No official report concerning the decision made by the Master Plumbers' Association in Montreal has

been received by the local organization, according to statements made by members of Local 254 of the Plumbers' Union.

The men asserted that only evil could result from the application of the piece-work system, urged by the Montreal plumbers, as a plumber would contract to have the plumbing materials supplied by the builder, thus receiving the work entirely in his own hands and also giving the individual plumber the position of a master plumber. Under such conditions, the man with the greatest physical capacity for work would have the advantage, the workmanship would become slipshod, and the union would be disintegrated.

NEW MEDICAL BUILDING FOR MONTREAL

Montreal.—Montreal is to have another new structure on one of the main thoroughfares. A ten-story building devoted exclusively to medical men and specialists in allied professions will be erected at the corner of St. Catherine and Crescent streets. Construction will begin next June, and the building will be ready for occupancy in May, 1923. When completed, Montreal will have the second largest medical building in the United States and Canada.

Each office will be equipped with special lighting fixtures designed for the tenants' use. The lavatories and plumbing will be arranged for medical men in accordance with the best modern practice. Compressed air will be supplied to each office where required.

MONTREAL'S NEW HOTEL

Montreal.—Work on Montreal's new hotel is expected to commence this month, the contract now being awarded. The name of the firm whose tender has been accepted is withheld, pending the conclusion of the necessary formalities.

It is understood that Canadian labor and Canadian material will be used in the construction as far as possible, and some 2,000 men will in all probability be employed, the majority of these drawn from Montreal and district.

The building cost is estimated at \$6,000,000. The building will contain 1,050 rooms, 30 stores and 40 offices. The construction will be steel and fireproof, with a grey stone and grey brick exterior. Provision will also be made for a roof garden and a banqueting hall capable of seating 2,000 for conventions.

WESTERN ONTARIO NEWS

J. L. Heureux, of Windsor, Ont., has been awarded the contract at \$37,827 for new separate school. Other tenderers were: R. Paddon & Co., \$37,859; W. J. McGuire, \$38,865. Mr. Heureux's contract is for heating, plumbing and ventilating.

Ald. Frank E. Harley, Gerrard St., London, Ont., has plans for a new residence to cost \$20,000 and wants prices on hot water heating, plumbing and electrical work.

Charles Lynch, Erieau, Ont., is preparing for new dwelling and wants prices on plumbing and heating.

The council at Simcoe, Ont., has accepted petitions for new sanitary sewers on Norfolk and Talbot streets and has authorized the preparation of plans for same.

W. T. Spettigu, of 261 Hill St., London, Ont., will commence work shortly on two residences to cost \$14,000 and wants prices on hot air heating, plumbing and electrical work.

J. C. Mann, of Windsor, Ont., has leased premises on Talbot St., at Essex, Ont., and will open up a plumbing shop about the middle of the month.

Charles Holtry, Essex, Ont., is preparing plans for new bungalow to cost \$4,000 and wants prices on heating, plumbing and electrical work.

Lee Walden, 160 Oxford St., London, Ont., wants prices at once on hot air heating, plumbing and electrical work for new \$8,000 residence.

W. Snell, 917 William St., London, Ont., has started work on \$5,000 residence. Prices wanted on hot air heating, plumbing and electrical work.

Peter Osterhout, Division Road, Cotnam, Ont., has commenced work on \$4,000 residence and wants prices on heating and plumbing.

J. C. Mann, of Essex, Ont., was awarded contract for laying new water services for the town at the following figures: $\frac{1}{2}$ ", 4 feet, \$15.30 and 60 cents per foot for balance; $\frac{3}{4}$ ", 4 feet, \$15.80 and 65 cents a foot for balance; 1", 4 feet, \$17.60 and 75 cents a foot, all repair work on the basis of \$1 per hour.

Charles Tuckey, Lobo, P.Q., wants prices on heating, plumbing and electrical work for new \$6,000 residence.

R. Fullerton, Cedar Springs, Ont., wants prices at once on heating and plumbing for new \$5,000 residence to be built this spring.

Mrs. Peter Cain, of Port Lambton, Ont., is preparing plans for \$4,000 bungalow and wants prices on heating and plumbing.

Gordon Porter, plumber and gas fitter, has moved to Sarnia from Wallaceburg. Mr. Porter was a former resident of Simcoe, Ont.

John Jenner, of Port Lambton, Ont., has started new \$5,000 bungalow and wants prices on heating and plumbing.

H. J. Castle, 713 Central Ave., London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with new \$4,500 residence.

George A. Waddell, 37 Glenwood, Ave., London, Ont., is erecting new \$3,500 dwelling and wants prices on hot air heating, plumbing and electrical work.

F. G. Heximer, 32 Pipe Line Road, London, Ont., wants prices on hot air heating, plumbing and electrical work for new \$7,000 residence.

George Johnston, of Kincardine, Ont., wants prices on hot air heating, plumbing and electrical work for two bungalows to be erected this spring.

Gordon Ross, of Kincardine, Ont., is preparing plans for business block containing two stores to cost \$15,000 and wants prices on heating and electrical work.

A Garber, Tiverton Creamery, Tiverton, Ont., is preparing plans for new building to be erected at Kincardine at a cost of \$15,000. Lower floor to be used for creamery and upper story for dwelling. Prices wanted on plumbing, heating and electrical work.

Charles Woods, 193 Wharncliffe Road, London, wants prices on hot air heating, plumbing and electrical work for a new \$4,000 dwelling.

W. J. Wilkey, 510 Quebec street, London, has commenced excavation for two residences to cost \$9,000. Owner wants prices on hot air heating, plumbing and electrical work.

N. Blackwell, 83 Sterling street, London, wants prices on plumbing, hot air heating and electrical work for a \$4,000 residence.

George Reid, Walker street, London, Ont., is excavating for \$3,500 residence and wants prices on heating, plumbing and electrical work.

Wm. Schildroth, of New Hamburg, wants prices on hot air heating and plumbing for two residences to cost \$7,500.

Brewer and Harrison, of Parkhill, have been awarded the contract for plumbing and galvanized iron work for new \$15,000 church at Brinsley.

Work will be commenced shortly at London, Ont., on a new three-storey warehouse for Crane, Limited, of Montreal, to handle hardware and plumbing supplies for Western Ontario.

The Wright Teale Co. of London, Ont., has been awarded the plumbing and heating contracts in connection with remodelling of office building for Dr. Babb.

The London Advertiser Co., London, Ont., wants prices immediately on steam heating system for a new office building. W. G. Murray, Dominion Savings Building, is the architect.

John H. Ranesbottom, Walkerton, Ont., is preparing plans for new \$5,000 bungalow and wants prices at once on hot air heating, plumbing and electrical equipment.

Separate tenders for heating, plumbing and electrical work and also for sheet metal work in connection with new \$25,000 memorial wing for hospital will be received until April 18 by James B. Watson, chairman of the hospital board at Kincardine, Ont.

Chester C. Woods, Sarnia, Ont., will receive tenders until April 26 for heating and plumbing in connection with new school for S.S. No. 18, Plympton township.

Prices are wanted immediately by the building committee of Christ Church, Amherstburg, C. A. Cuddy, chairman, on hot air heating, plumbing and electrical work in connection with new \$10,000 parish hall.

The Molsons Bank, Amherstburg, Ont., W. S. Falls, manager, has purchased property which will be completely remodelled. New heating, plumbing and electrical work.

Raymond Ryan, Amherstburg, Ont., wants prices immediately on hot air heating, plumbing and electrical work for new \$4,500 residence.

Claude Chapman, sanitary and heating engineer, Amherstburg, Ont., is moving this week to a new location in the Hunt Block. He plans to fit up a thoroughly modern plumbing shop and show rooms.

Negotiations are under way at Amherstburg, Ont., for the purchase by the Hayes Ruppell Co., of Grand Rapids, manufacturers of closet tanks, for the purchase of the old Two-in-One Auto factory for their Canadian branch.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

A REVISION of discounts in pipe fittings with lower prices is the chief feature of interest in plumbing and steam fitting supplies up to date. Quotations on most lines are holding at recent changes and few changes are noted. A small decline is noted on some sizes of soil pipe. Among the declines of a smaller nature are pipe wrenches and boiler rivets. Prices are being held on enamelled wares, radiation, range boilers, conductor pipe, sheets and plates, bar iron, lead products and wrought pipe. The scrap metal market is in a very dull state with small signs of improvement. Ingot metals, while little changed, are affected by the strike situation in Great Britain.

In the primary steel markets the chief feature is the action of the U.S. Steel Corporation in announcing new and lower prices on many of their products, and while the reductions do not in all cases reach the extreme low levels which have been quoted by some of the independents and which were not justified by conditions within the steel industry the new prices are looked upon to stabilize the market. Whether they will result in a greater buying activity remains to be seen. In domestic wholesale circles there is a distinctly better feeling, and though the increase in business has been small there are signs of improvement and a more hopeful outlook is general.

MONTREAL MARKETS

MONTREAL, April 13.—There are a few reductions of interest to the plumbers and steamfitters in this week's market. Soil pipe, from 2 to 6 inches, have changed discounts, making a small decline. Pipe fittings are quoted lower in many kinds. In tools, Stillson wrenches of Canadian pattern are now 50% off list. There is one advance of a smaller nature, cotton wipers are 3 cents higher than formerly. Boilers and radiators are holding at decline of last month, enamelled ware, range boilers, eavestrough and conductor pipe, sheets, bar iron and steel, lead products and wrought pipe are all unchanged. There is a decided change in the feeling of trade and a much steadier market in general is noted. Waste materials are dull and quotations are showing at a sharp decline. Ingot metals show an improvement.

Stillson Wrenches 50% Off

Montreal. Through a change in discounts, Stillson wrenches of the Canadian pattern are now lowered in price. The new discount is 50 per cent. off list, formerly being 45 per cent.

Bigger Sales of Metal Lath

Montreal. Business in metal lath has opened up considerably during the past two weeks, and dealers who handle this product state that the open weather which has caused a better feeling in all building materials has benefited this line. Prices are unchanged and are as follows:

METAL LATH.

Painted—	
26 gauge, sq. yd.	0 35
24 gauge, sq. yd.	0 39
23 gauge, sq. yd.	0 45
Galvanized, 11c per sq. yd. extra.	
Discount, 10%.	

Boilers and Radiation Hold

Montreal. A better feeling exists in the trade on hot water and steam boilers and radiators, and with building operations now in sight, an increased activity is

expected. At present there are few actual sales being made, but prospects are encouraging. There has been no further change in prices since the decline of last month, and following are quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount. 48% for hot water and 49% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10. 55% off list.

Square or sectional hot water or steam boilers, 15-in., 5%.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 5% off list.

Square or sectional steam boilers, 19-in. to 36-in., 5%. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10%.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Waste Held; Wipers Advance

Montreal.

There has been no change made in

the prices of either white or colored waste, but wipers show an advance of three cents on both white and colored. White cotton is now quoted at 23 cents per pound and colored at 18 cents. This advance is shown, notwithstanding reductions have been given on many lines of cotton goods recently. There has been a steady demand for wastes, and a good improvement has been shown since the beginning of the month. Following are the present prices:

Cream, Polishing	0 22
WHITE	
XXX	0 18 1/2
XX	0 17 1/2
X	0 16 1/2
XLCR	0 16 1/4
Empire	0 15 1/4
X Press	0 13 1/2
6X Special	0 12

COLORED	
Fancy	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09

WOOL PACKING	
Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 23
Colored Cotton	0 18
Above lines subject to trade discount for quantity.	

Sheets are Backward

Montreal.

There is a little better demand for sheets, both black and galvanized, but hardly worthy of note. Present stocks are fully ample, and jobbers are not encouraged to buy except in accordance with sales now being made. The report of an advance in steel prices in the United States did not come as a surprise to many dealers, and one local jobber stated he expected it, and wondered it did not come at an earlier date. It is quite apparent that recent quotations from the Pittsburgh fields were be-

low productive costs, and failed to locate any revival or activity in their output. Any action taken by the Steel Corporation is looked for with general interest. However, predictions are not at present given. Local prices are nominally unchanged this week, but are quoted as having a range, as a variation exists from different quarters. Following are the quotations:

PLATES—	
10 gauge	6 25
12 gauge	6 30
14 gauge	6 45
16 gauge	6 55

BLACK SHEETS—	
10 gauge	6 50
12 gauge	6 55
14 gauge	6 60
16 gauge	6 80
18-20 gauge	7 95
22-24 gauge	8 00
26 gauge	8 10
28 gauge	8 20
Sheets 36 in. wide, 10c. per 100 lbs. extra.	

GALVANIZED SHEETS—	
U.S. Standard—	
10½ oz.	10 25
28 gauge	9 75
26 gauge	9 50
22 and 24 gauge	9 35
20 gauge	9 15
18 gauge	9 15
16 gauge	9 00

English Standard—	
28 gauge	10 75
26 gauge	10 50
24 gauge	9 90
22 gauge	9 55
18 and 20 gauge	8 85

NOTE—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Bars Little More Active

Montreal.

The demand for iron and steel bars is still light, considering the season of the year, only sorting orders being received. With the curtailment of pig iron in the United States comes the report of an advance in steel quotations in many quarters, thus causing a little different aspect on the future trend of iron and steel products. However, it is believed this will have no immediate effect on present quotations, but will in all likelihood be the end of the recent price-cutting from that source. Any action which the Steel Corporation will take will be interesting, but there is no indication that much change in quotations will be made in the near future. Following are present local quotations:

Common bar iron, 100 lbs.	4 00
Refined iron	5 50
Iron finish machinery steel	4 05
Mild steel	4 00
Single reeled machinery steel	6 80
Band steel	4 00
Spring steel	6 00
Sleighshoe steel	4 00
Tire steel	4 20
Toe calk steel	4 90
Harrow tooth steel	4 15
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb.	0 23

NOTE—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Waste Materials Decline

Montreal.

A sharp decline is made on many metals in the scrap market. The long period of inactivity has shown very

little improvement, notwithstanding the open weather. Inquiries are not coming to hand in seasonable numbers, and dealers state that lower prices may have some tendency towards opening the situation, but with the steel production as it now stands, little improvement may be expected in the ferrous metals. Non-ferrous metals are much in the same position, and remain very quiet. Following are the nominal quotations:

Dealer's Buying Prices.	
Automobile tires	0 75
Yellow brass	0 05
Red brass	0.08½
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0.03½
Lead, tea	0 02
Light copper	0 08
Heavy copper	0.10½
Wrought iron, R. Rd., No. 1 per gr. ton	12 00
Malleable scrap (ton)	11 50
Pipe scrap (ton)	8 00
Heavy melting steel	8 50
No. 2 busheling	4 00
Boiler plate	0 08
Stove plate (ton)	18 00
No. 1 machinery cast	25 00

Corrugated Sheets More Active

Montreal.

In line with other building materials, corrugated sheets have shown considerable improvement in recent few weeks. The movement, however, is confined to the lighter gauges, 28 and 26 gauge being the sellers. Although sales are still behind last year, the increased sales since the beginning of the month are causing dealers to be much more hopeful than they were previously. List prices are unchanged, but slightly better quotations are given in some quarters for quantity. Following are the list prices:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

Compression Goods Hold

Montreal.

Prices are remaining steady on the different lines of compression goods. The business in these continues fair, and brass values have shown considerable activity during the past few weeks. Following are the present quotations:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	34%
Roundway stop and waste cocks, standard	34%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10%

Slow Improvement in Boiler Tubes

Montreal.

There is a continued slight improvement in sales of boiler tubes, but the demand is of a sorting order for immediate repair work, and along with other lines of iron and steel, large orders are

still held back. Quotations are unchanged and are as follows:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1½ inch	27 25	.....
2 inch	26 25	.....
2½ inch	20 75	27 00
3 inch	29 25	24 50
3½ inch	33 00	28 50
4 inch	44 75	32 50
.....	49 25	40 00
.....	63 50	43 50
.....	85 00	55 50

Eavestrough Now Active

Montreal.

The open weather has certainly benefited the movement of eavestrough, conductor pipe, etc., one dealer stating, "The last two weeks has shown a decided improvement, and sales are quite up to normal." The bookings that were placed other years during the winter and early spring months were not made to any extent this year, dealers apparently preferring to wait until the actual demand was shown. Now this demand has come with the weather, allowing outside work, and sales should be in good volume throughout the early summer months at least. Following are the unchanged prices:

EAVETROUGH—

O.G. Square Bead—	Per 100 ft.	Per 100 ft.
8 in.	15 90	15 inch 28 80
10 in.	17 70	18 inch 36 80
12 in.	21 20	.....
O.G. Round, and Half Round—		
8 in.	16 90	15 inch 29 80
10 in.	18 70	18 inch 37 80
12 in.	22 20	.....
Discount 50/10% off list.		

CONDUCTOR PIPE—

	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00
Discount 50/10% off.	

CONDUCTOR ELBOWS—

Plain round or round corrugated—	
2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00
Discount 50% off.	

Range Boilers Steady

Montreal.

Range boilers are selling in small numbers, orders being for one or two only in most cases, showing that dealers are only buying as the actual requirement demands. However, with the help of any improvement in building, dealers are expecting a continued gradual increase in business. Quotations are as follows:

RANGE BOILERS—	Stand.	Ex.	Hvy.
30-gallon	13 00	15 00	.....
35-gallon	15 00	.....	.....
40-gallon	17 00	19 00	.....
52-gallon	24 00	.....	.....
66-gallon	32 00	.....	.....
82-gallon	42 00	.....	.....
100-gallon	50 00	.....	.....
120-gallon	60 00	.....	.....

Enamelled Ware Improves

Montreal.

The increased business in enamelled ware of the different lines is of a very gradual nature, and sales are still backward. Jobbers are anticipating a revival as soon as the many contracts are let, that they are now figuring. In fact, a decided increase in building prospects has opened up in recent weeks, and this

will have favorable results in enamelled ware at future dates. Following are present quotations, which are unchanged:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$6 00 \$5 92 \$5 84
18 x 24	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories—	
17x19" Apron F139 or P4045	12 24
18x24" Apron F154 or P3847	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345	10 08

Closets Make Slow Progress

Montreal. Conditions on closets are reported to be showing a very gradual improvement. The future building activities that have become more prominent in the past few weeks are now looked upon as being very promising to the future business. Quotations are the following:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Soil Pipe Discounts Changed

Montreal. There has been a change in discounts on soil pipe, thus lowering quotations. The reduction is from 5 to 6 per cent. on the 2-in. to 6-in. pipe, while 8-in. remains unchanged. There has been no change made in fittings. Business shows a slight improvement, but sales are still small. Following are the new quotations:

SOIL PIPE (medium and extra heavy)—
2, 3, 15%; 5 and 6-inch, 20% discount.
4-inch, 25% discount.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Wrought Pipe Fairly Active

Montreal. There continues a better feeling on wrought iron and steel pipe, and deliveries are now being forwarded in good numbers. The volume of business in piping has kept up fairly well all during the early months of the year, due to dealers being able to replenish their stocks after the shortage the latter end of last year. List No. 50 is now the selling basis, effective March 28th, and is as follows:

Standard Butt-weld Pipe S/C					
Per 100 feet.					
Size	Steel		Gen. Wrot. Iron		
	Blk.	Galv.	Blk.	Galv.	
½ in.	\$ 6 50	\$ 8 50	\$	\$	

¼ in.	4 89	6 99	5 91	8 01
¾ in.	4 89	6 99	5 91	8 01
1 in.	6 50	8 03	7 95	9 48
¾ in.	7 99	10 06	9 95	12 02
1 ¼ in.	11 82	14 88	14 71	17 77
1 ½ in.	15 99	20 13	19 90	24 04
2 in.	19 11	24 06	23 79	28 74
2 ½ in.	25 72	32 38	32 01	38 67
3 in.	40 66	51 19		
3 ½ in.	53 17	66 94		
4 in.	67 62	84 18		
4 ½ in.	80 12	99 74		

Standard Lap-weld Pipe S/C

Per 100 feet.					
Size	Steel		Gen. Wrot. Iron		
	Blk.	Galv.	Blk.	Galv.	
2 in.	\$29 42	\$36 08	\$35 71	\$42 37	
2 ½ in.	44 17	54 70	54 11	64 64	
3 in.	57 76	71 53	70 76	84 53	
3 ½ in.	69 46	86 02	85 10	100 66	
4 in.	82 30	101 92	100 83	120 45	
4 ½ in.	95 89	1 20	1 30	1 54	
5 in.	1 12	1 40	1 52	1 80	
6 in.	1 45	1 81	1 97	2 33	
7 in.	1 89	2 37	2 53	3 01	
8 in.	1 99	2 49	2 66	3 16	
8 L in.	2 29	2 87	3 07	3 64	
9 in.	2 74	3 43	3 67	4 36	
10 L in.	2 54	3 18	3 41	4 05	
10 in.	3 28	4 10	4 39	5 21	

Pipe Fittings Slightly Lower

Montreal. Pipe fittings of many kinds will now cost a little less through a change in discounts. In most cases the reduction is around 2 per cent, although flanges are changed from 20 to 27 per cent. off list. Pound goods were previously quoted add 17½ per cent., but now are shown at add 10 per cent. A good sorting business continues, with stocks now in good shape in practically all kinds and sizes. The new discounts are as follows:

Bushings, cast	25%
Do., malleable	25%
Flanges	27%
Plugs	22½%
Flange Unions	20%
Malleable Unions	40%
Dart Unions, black	20%
Do., galvanized	add 5%
Nipples, ½ to 4" close and short	40%
Do., long	50%
Do., ½ to 8" close and short	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	
Class B	Blk. 0 20 Galv. 0 28
Class C	0 13 0 20
Add 10%.	

No Change in Lead Products

Montreal. Prices on all lines of lead products are unchanged. With the firming of pig lead, these products have been able to hold on a steady market, and although a reaction would not be surprising to some dealers, lower prices are thought unlikely in the finished products for some little time at least. There is a gradual increase in the demand for all lines, and jobbers are now waiting for the building trade to open, with ample stocks on hand. Prices are as follows:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb.	0 10½
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼ lb. extra and cut sheets to size, ¼ lb. extra.	
Solder, guaranteed, lb.	0 26

Do., strictly, lb.	0 24
Do., commercial, lb.	0 21
Do., wiping, lb.	0 21½
Do., wire, lb.	0 34
Zinc sheets, casks	0 14
Do., broken lots	0 15½

Oakum Shows No Change

Montreal. There is a little variance in quotations on plumbers' oakum. However, \$4.50 per 50-pound bale seems to be the general price, showing no change from last quotations. One cent per pound is charged extra for broken quantities.

Ingot Metals Hold Well

Montreal. Markets on the different ingot metals are holding remarkably well. The London market also continues to advance, despite discouraging news from that source. It is unlikely, however, that this advance will continue, but it is generally felt that the bottom has been reached on practically all ingots, and any changes in the future will be for the better.

TIN.—This metal has advanced steadily in London and has now touched the highest point since the latter part of February. Whether this will be maintained is hard to determine, but this is a decided improvement in tin, as last week it was reported easier. New York continues to hold firm. Local prices are a little higher at 6½ cents.

COPPER.—Although copper has been a little easier in New York owing to the fear of exports being cut off, the trade was rather encouraged by the news of an order of 2,000,000 pounds being placed by Germany. With production curtailed as it is, this may have a stimulating effect on the market. Local prices are unchanged at 17¼ cents for casting and 18 cents for electro.

SPELTER.—The United States markets remain unchanged on spelter, but a firmer tone has been shown in London. It is generally felt this metal should continue to improve. Local price unchanged at 8½ cents.

LEAD. — Lead shows continued strength in London with steady advances being made. Opinions differ as to the future of this metal, and some express they would not be surprised if a reaction would set in. Local quotations are a little easier at 6½ cents.

ANTIMONY.—Stocks of antimony are still quite heavy, while the market remains very dull. Chinese antimony is quoted at 7½ cents, high grade English 8½ cents.

ALUMINUM.—Business is still reported dull in aluminum, with price remaining unchanged at 35 cents.

TORONTO MARKETS

TORONTO, April 13.—Pipe fittings provide the chief feature of the price changes this time in plumbing and steam fitting lines and the bulk of these goods are holding at recent changes. Sheet prices are showing a few reductions and declines have been made in some lines of range boilers. Pipe wrenches are lower in price. Quotations on wrought pipe, corrugated sheets, conductor pipe and eavestrough, compression goods, lead products, radiation, bar iron and steel and boiler tubes show no changes since the last report. Prices on enamelled wares and closets are also held. While business has not picked up to any extent yet, there is said to be a distinct improvement and prospects look brighter for the coming season.

No Further Pipe Changes

Toronto.

Some small increases in the demand for wrought iron pipe are reported, but taken altogether sales are small and buying is mostly for actual needs. Buyers do not seem to believe that prices are yet on a firm basis and are not stocking up to any extent, and with stocks in better shape there is not the difficulty in getting orders filled that was experienced a year ago. Prices are holding at the changes of two weeks back and list No. 50, which follows, is still in effect.

Price List No. 50. March 28th, 1921
Standard Butt-weld Pipe S/C

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1/8 in.	\$ 6 50	\$ 8 50	...	...
1/4 in.	4 89	6 99	5 91	8 01
3/8 in.	4 89	6 99	5 91	8 01
1/2 in.	6 50	8 03	7 95	9 48
3/4 in.	7 99	10 06	9 95	12 02
1 in.	11 82	14 88	14 71	17 77
1 1/4 in.	15 99	20 13	19 90	24 04
1 1/2 in.	19 11	24 06	23 79	28 74
2 in.	25 72	32 38	32 01	38 67
2 1/2 in.	40 66	51 19	...	...
3 in.	53 17	66 94	...	...
3 1/2 in.	67 62	84 18	...	...
4 in.	80 12	99 74	...	...

Standard Lap-weld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$29 42	\$36 08	\$35 71	\$42 37
2 1/2 in.	44 17	54 70	54 11	64 64
3 in.	57 76	71 53	70 76	84 53
3 1/2 in.	69 46	86 02	85 10	101 66
4 in.	82 30	101 92	100 83	120 45
4 1/2 in.	95 89	1 20	1 30	1 54
5 in.	1 12	1 40	1 52	1 80
6 in.	1 45	1 81	1 97	2 33
7 in.	1 89	2 37	2 53	3 01
8 in.	1 99	2 49	2 66	3 16
8 1/2 in.	2 29	2 87	3 07	3 64
9 in.	2 74	3 43	3 67	4 36
10 in.	2 54	3 18	3 41	4 05
10 1/2 in.	3 28	4 10	4 39	5 21

Pipe Fittings Revised

Toronto.

Some revisions have been made in prices of pipe fittings since the last market report and reductions varying from 5 to 10 or 12 per cent. have taken place. Cast iron fittings are now quoted at 20 per cent. off list. The old discount was 15 per cent. Bushings go from 20 to 30 per cent. off. Unions from 30 and 35 per cent. to 35 and 40 per cent. Dart unions also show a decline. Cast plugs are quoted at 27 1/2 per cent. Pound goods, class B and C, are slightly reduced. Sales on fittings are still light and buying is usually for present requirements. Stocks are in good shape now. The following are the present quotations:

Cast iron fittings	20%
Plugs, cast	27 1/2%

Do., solid	10%
Do., countersunk	Net list
Bushings	30%
Unions, 1/4 in. to 2 in.	40%
Do., 1/4 in., 2 1/2 in. to 4 in.	35%
Dart-Unions, blk., 1/4 in. to 2 in.	29%
Do., 1/4 in., 2 1/2 in. to 4 in.	14%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4 1/2" and larger	30%
Long, 4" and under	50%
Do., 4 1/2" and larger	40%
Running thread, 4" and under	20%
Do., 4 1/2" and larger	...
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4 1/2" and larger	Net

MALLEABLE FITTINGS

Class A	0 60	0 75
Class B	0 24	0 33
Class C	0 15	0 24

Soil Pipe Still Slow

Toronto.

A little more demand is reported for soil pipe and fittings, but the usual spring activity has not yet been felt. Prices are holding unchanged, but if revisions are made it is believed they are likely to be downward. Supplies are ample for all normal demands. The following are current quotations:

- 2 and 3 inch, 10%.
- 4 inch, 20%.
- 5 and 6 inch, 15%.
- 8 inch, add 5%.

FITTINGS—

- 2 to 6 inch fittings, 40%.
- 8 inch fittings, plus 5%.

Boiler Rivets Reduced

Toronto.

There has been a reduction in the price of boiler rivets and these are now quoted at \$6.50 base.

Pipe Wrenches Lower

Toronto.

Reductions have been made in the price of some makes of pipe wrenches and the Canadian make of Stillson wrench is now quoted at 50 per cent. off list, while the Trimo wrench is also lower. The new net prices of each are as follows:

TRIMO WRENCHES—Net—8 in., \$16.90 per doz.; 10 in., \$18.80; 14 in., \$26.25; 18 in., \$37.50; 24 in., \$54.50.

STILLSON WRENCHES—Net prices—6 in., \$1 each; 8 in., \$1.13; 10 in., \$1.25; 14 in., \$1.75; 18 in., \$3.63; 36 in., \$6.75.

Canada Plate Easier

Toronto.

Lower quotations are in force on Canada plate and \$9.50 to \$9.75 is the price named on boxes of 52 sheets. There is not much demand at the present time and stocks are ample for all requirements. From present indications stocks this fall should be in good shape and there should not be the shortage of last

season. Tin plate prices are also being quoted lower, and the tendency is downwards. It is reported that Welsh tin plate is being offered at New York at over \$1 per box below the Pittsburgh quotations.

Compression Work Steady

Toronto.

No changes are reported in the prices of compression work, although some look for a downward tendency on valves following declines in the prices of these goods in the U.S. While no great improvement in sales is noted there is a steady growth in each month's business. Quotations remain as follows:

Compression work, standard	84%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	25%
Flatway stop and waste cocks, standard	34%
Roundaway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	10%
J.M.T. C.	15%
J.M.T. Gate Valves	15%
Gate or straightway	7/10%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable discs	38%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Range Boilers Move Slowly

Toronto.

There is a small but fairly steady sale now for range boilers, but jobbers state that sales are mostly for present requirements. The electric welded boiler is meeting with a good demand throughout the trade. The standard 30-gallon size in this variety is being quoted at \$11.50 and \$11.75, and sales are being made at \$12.50 for the standard riveted boiler. The following are quotations:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	12 50	15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Better Feeling Regarding Wares

Toronto.

Enamelled wares are still moving out slowly, and although some improvement is shown business is "scrappy," as one wholesaler expressed it. An increase in sales is looked for within the next few weeks and stocks are said to be ready to meet it. There seems to be a better feeling regarding future prospects than was evident a short while back. Quotations are unchanged and are the following:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	\$16 25
Do., do., 5 1/2 ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P8845 or P3847	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20% off these prices.	

Little Change in Closets

Toronto. Business is still rather backward in these lines, although some jobbers state that there is a slight revival in demand, but they do not expect much increase in activity until new construction gets under way. Prices are unchanged and are the following:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ½ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

Radiator Prices Held

Toronto. Although there has not been much change in the demand for radiation manufacturers are optimistic and believe that as the season advances business will pick up in these lines. Prices are holding at the changes noted in the last issue and 48 per cent. off list is quoted for hot water and 49 for steam. Wall radiators are now 45 per cent. off list. The standard lists are the following:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
 38 in., \$1: 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
 Discount 48% for hot water and 49% for steam.
 Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

No Change in Bars

Toronto. No further changes have been reported in bar iron and steel prices. Business is stated by wholesalers to be light and showing few signs of immediate improvement. Consumers are not showing any anxiety to increase stocks or buy beyond their actual needs, and the question of price enters into it hardly at all. What result the change in prices by the Steel Corporation will have on the market is unknown, but prior to the announcement of that change mills in the Youngstown district had advanced prices on steel bars, while producers in the Chicago district had reduced iron bars \$6 a ton. The following are quotations on quantities here:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	\$ 4 50
Do., ¼ in. and heavier	4 00
Common bar iron, 3-16 in. and lighter	4 50
Do., ¼ in. and heavier	4 00
Angle base	4 10
Horseshoe iron	6 00
Tire steel	5 95
Band steel	4 50
Spring steel	12 75
Mining drill steel	23 00
Crucible cast sheet steel	35 00
Sheet cast steel	35 00
Sleighshoe steel	4 50
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Lead Products are Steadier

Toronto. There is little change reported in prices of lead and zinc products. The market for lead and spelter remains practically unchanged, although lead is firmer. Production of pig lead has been curtailed and the supplies on hand have been materially reduced. Many are of the opinion that lead products have practically reached the bottom of the decline and think that future tendencies will be upwards instead of down. Business continues fairly active considering conditions. The following are present quotations:

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09½
Cut sheets ½ c to ¾ c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 34
Do., 40-60	0 26½
Do., 50-50	0 29
Do., strictly, lb.	0 24
Do., commercial, lb.	0 22
Do., guaranteed, lb.	0 27
Do., wiping, lb.	0 22
Zinc sheets, per lb.	0 16
Calking lead	0 08 0 09

Conductor Elbows Improved

Toronto. With a better demand for conductor pipe there is also more activity in crimped and corrugated elbows. Quotations remain unchanged and are the following:

2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 50%.	

Eavestrough Moving Better

Toronto. There has been a better sale for eavestrough and conductor pipe in the past two weeks and dealers report more repair work being executed and more inquiries in hand. From now on sales in these lines should show improvement. Prices are holding unchanged at the levels set early in the present year. Following are present quotations:

TROUGH (Eave)			
O. G., Square Bead and half round.		Size in	
girth:			
	Per 100 ft.		Per 100 ft.
8-in.....	\$15 90	15-in.....	\$23 80
10-in.....	17 70	18-in.....	36 50
12-in.....	21 20		
Less 50/10 per cent.			
PIPE (Conductor)			
Plain, round or corrugated.			
Per 100 ft. in 10 ft. lengths.			
2 in., in	10-ft. lengths, list	.....	\$18 40
3 in., in	10-ft. lengths, list	.....	22 30
4 in., in	10-ft. lengths, list	.....	29 60
5 in., in	10-ft. lengths, list	.....	40 00
6 in., in	10-ft. lengths, list	.....	49 00
Less 50/10%.			

Corrugated Sheets Show Improvement

Toronto. A continued improvement is reported in the sales and demand for corrugated sheets and though business is not by any means heavy the growth is promising. No changes are reported in prices, which are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00

No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7½%.	

Boiler Tubes are Slow

Toronto. There has been little news to report in boiler tubes and business shows but few signs of improvement. A better demand is usually noted at this season of the year than has been experienced lately. Quotations are nominally unchanged and are as follows:

	Per 100 feet	
	\$28 00	\$....
1 inch	30 00	
1¼ inch	32 00	
1½ inch	33 00	
1¾ inch	35 00	28 00
2 inch	38 00	32 00
2¼ inch	46 00	36 00
2½ inch	54 00	45 75
3 inch	70 00	46 00
3½ inch	92 00	60 00
4 inch		

Furnace Sales Small

Toronto. Sales on furnaces are not heavy at this season of the year, but with new building construction starting a better movement is expected later on. Manufacturers are not overstocked and materials are more plentiful than they were last season and as the demand picks up it is believed that stocks will be in shape to meet it. Some revisions were recently made in prices of some lines of furnaces and were noted in the last issue of Sanitary Engineer.

Stove Outlook Better

Toronto. Although business is light at present in ranges and stoves there is a small and steady movement in these lines. Some lines of ranges were revised recently and reductions of about 10 per cent. were made in prices. Stocks in warehouses are not large, but are expected to be in better shape for the fall business. There is a good sale now for combination gas, coal and wood ranges and also for gas stoves. Sales, too, of electric ranges are steadily growing and the time is past when there were looked on as an experiment. Manufacturers state that their business in these lines is increasing each month.

Oakum is Unchanged

Toronto. There is no change in the quotations on plumbers' oakum and in 50 lb. bales it is priced at \$4. For small quantities prices range from 10 to 12 cents per pound.

Cotton Waste Holds

Toronto. No further changes are reported in cotton waste, but with the cotton market unsettled there is no definite future tendency. In wipers there has been some slight increase in prices made. The demand is not heavy at present. Quotations are as follows:

WASTE		
WHITE		
Cream, Polishing		0 22
XXX		0 21
XX		0 19½
X		0 17½
XX, grad.		0 17½
XLGR		0 16½
X Empire		0 16
X Press		0 13½
XC		0 16½

COLORED

No. 1	0 14 1/2
No. 7	0 13 1/2
No. 1A	0 12 1/2
No. 1B	0 11 1/2
Faney	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09

Above lines subject to trade discount for quantity.

Sheet Copper Firm

Toronto.

Prices on brass and copper sheets, rods and tubing remain nominally unchanged. With production in the U.S. copper industry materially curtailed and companies producing 75 per cent. of the entire U.S. copper output now completely closed down values have been strengthened and the future tendency is towards firmer primary markets. The following are the current quotations:

BRASS—	
Sheets, base, per lb.	\$0 29
Rods, base, per pound	0 26
Tubing, base, per lb.	0 36
COPPER—	
Rods, base, per pound	0 34
Soft sheets, plain, 16-oz. and heavier, lb.	0 34
Do., plain tinned	0 40
Do., polished and tinned	0 45
Tubing	0 39

Lead and Oil Prices

Toronto.

Both linseed oil and turpentine have declined further since the last market report. Single barrels of raw linseed oil are now quoted at 77 cents per gallon and boiled at 80 cents. The price of turpentine is now 90 cents in single barrels; 15 cents per gallon extra is charged for less than barrels in both oil and turpentine, and containers are charged for. White lead in less than ton lots is still quoted at \$15.30 per 100 pounds.

Sheets and Plates Weaker

Toronto.

Prices continue to show a range in sheets and plates, and concessions are being made in prices in order to reduce stocks, and reports are current of even lower quotations on good sized orders, but buying continues light and consumers are not anxious to place orders far ahead, preferring to be able to take advantage of any possible decline in prices. The operations of the independent U. S. mills have dropped to about 25 per cent. of capacity. Further declines in sheet prices are reported from the Youngstown district, but there is little demand for either black or galvanized, and little business is being done in more than carload lots. The Steel Corporation's action in reducing prices is expected to bring stability to the market. The following is the range of quotations here:

BLACK SHEETS		
14 gauge	5 80	6 80
16 gauge	5 90	3 90
18-20 gauge	6 25	7 25
22-24 gauge	6 30	7 30
26 gauge	6 35	7 35
28 gauge	6 50	7 50
PLATES		
10 gauge	5 75	6 20
12 gauge	5 80	6 25
14 gauge	5 85	6 30
16 gauge	5 95	6 40
GALVANIZED SHEETS		
Premier and Apollo		
10 1/2 oz.	8 90	9 80

U.S. 28 gauge	8 50	9 50
U.S. 26 gauge	8 20	9 20
22 and 24 gauge	8 05	9 05
18 and 20 gauge	7 90	8 90
16 gauge	7 75	8 75
12 and 14 gauge	7 70	8 70

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10 1/2 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Asbestos Products Firm

Toronto.

The demand for asbestos products, sheathings, roofings, asbestos shingles, etc., is not yet showing much increased activity, but with a better outlook for building than was expected earlier in the season, larger sales are anticipated. Prices show little change, and while labor costs, freights, etc., remain at present levels, there appears not much reason to expect any substantial change, it is stated.

Scrap Market Stagnant

Toronto.

Business in waste materials is reported to be almost at a standstill, and though consuming plants are operating more actively, they have sufficient supplies on hand to meet their present requirements. The line that has shown the most demand has been No. 1 cast scrap. In copper and brass the demand has been very dull. Prices are still largely nominal and the following are for fairly large quantities:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	19 00	20 00
Scrap pipe	8 00	9 00
Yellow brass	6 50	7 50
Red brass	10 00	
No. 1 machinery cast	24 00	25 00
Heavy melting steel	13 50	14 50
Heavy copper	10 50	11 00
Light copper	8 00	9 00
Scrap zinc	3 75	4 25
Light brass	4 00	4 50
R.Rd. wrought iron, No. 1, per gr. ton	13 50	14 50
Heavy lead pipe	3 75	4 00
Old rubbers, boots and shoes	2 00	2 50
Overshoes, lumbermen's rub. boots	2 00	2 50
Bicycle tires	0 75	1 25
Automobile tires	0 50	1 00
Tea lead	1 75	2 00

Ingot Metals Irregular

Toronto.

The ingot metal market has been described as flabby and irregular, and trading this week has been dull. The labor situation and prospective strike in Great Britain is affecting metals in all markets and dealers are little inclined to either buy or sell until the situation has been cleared up. Prices show practically no change, quotations easing a shade one day and firming again the next but with an entire absence of demand prices seem to be immaterial.

TIN.—This metal has been dull with prices unchanged here. London markets have fluctuated with the developments of the strike, but dealers are said to be out of the market. United States markets were weak. Quotations remain at 36 cents per pound.

COPPER.—Prices continue low in copper markets, and it is regarded as having reached bottom. United States markets are dull and sales to Europe have decreased. The domestic demand is stated to be disappointing to United States producers. Local quotations are unchanged and casting copper is still at 18 cents.

LEAD.—A slightly firmer tone is shown in lead markets. The demand remains light and the spurt of buying early in the month seems to have subsided. United States markets show little change, while London is slightly firmer. Six dollars is still the local quotation.

SPELTER.—The market has been very dull in this, and transactions are few and far between. In spite of this prices have held firmly and quotations here are unchanged at \$7.25.

ANTIMONY.—The market is dull and quiet. Few inquiries come to hand and quotations are unchanged. Prices 8 to 9 cents per pound.

ALUMINUM.—Business is still quiet with the market firm. United States market reports show an advance there due to increased inquiries from consumers. Thirty cents is still quoted here.

WINNIPEG MARKETS

WINNIPEG, April 13.—Price changes have not been many since the last issue of Sanitary Engineer appeared. The chief feature is the new list on pipe, showing a reduction on black and galvanized. Range boilers have been reduced in price. New lower prices are being made on valves this week and plumbers' oakum is reduced. Quotations are held unchanged on lead goods, sheets, eavestrough and conductor pipe and soil pipe and fittings. Business on the whole has been quiet, but a slight improvement is noticed in some directions. With the coming of spring and the renewal of building construction dealers are optimistic and believe that a change in conditions will soon be felt.

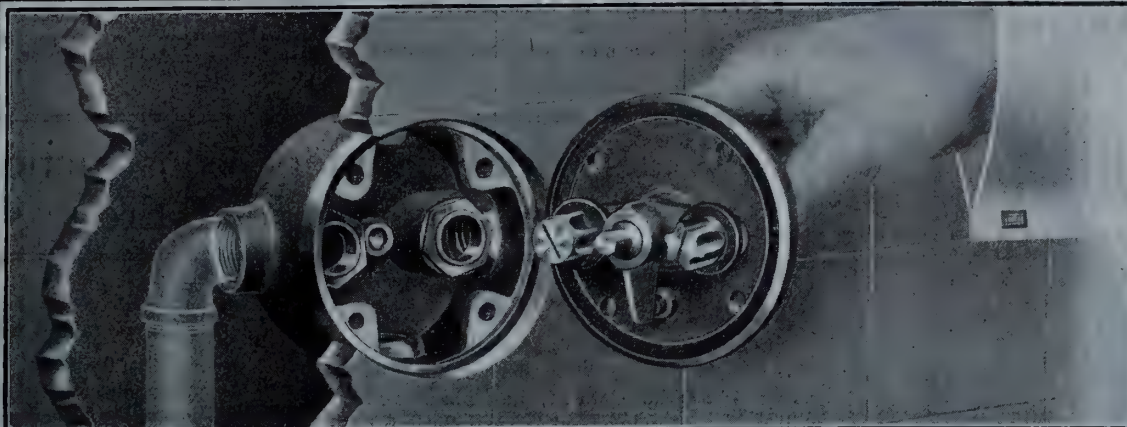
Soil Pipe Firm

Winnipeg.

Soil pipe and fittings are held unchanged at the price set last month. Sales are not as large as they should be

for the time of the year. Quotations are the following:

Cast Iron Soil Pipe.—2 and 3 in., 5% off; 4 in., 17 1/2%; 5 and 6 in., 10% off; 8 in., 10% adv.
Soil Pipe Fittings.—2 to 6 in., 35% off; 8 in., 10% adv.



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Black and Galv. Pipe Lower Winnipeg.

Prices have been reduced again on black and galvanized pipe, and list No. 50 is now in effect and is as follows:

BLACK PIPE. F.O.B.

Size ins.	Winnipeg	Calgary Edmonton Lethbridge and Medicine Hat.	Saskatoon	Regina	Brandon
		[Add to Winnipeg price.]			
1 1/2	6.21	0.30	0.20	0.17	0.11
2	5.49	0.53	0.34	0.30	0.19
2 1/2	5.63	0.70	0.45	0.40	0.26
3	7.56	1.05	0.67	0.59	0.38
3 1/2	9.32	1.40	0.90	0.79	0.51
4	13.82	2.08	1.34	1.17	0.75
4 1/2	18.68	2.80	1.80	1.57	1.00
5	22.28	3.35	2.15	1.88	1.21
5 1/2	30.02	4.50	2.88	2.52	1.62
6	48.70	7.18	4.60	4.02	2.68
6 1/2	63.72	9.42	6.03	5.28	3.39
7	80.73	11.25	7.20	6.30	4.05
7 1/2	95.63	12.33	8.53	7.46	4.80
8	114.30	15.61	10.04	8.75	5.62
8 1/2	133.20	18.12	11.60	10.15	6.52
9	172.80	23.45	15.00	13.14	8.44
9 1/2	252.90	29.09	18.62	16.28	10.46
10	266.40	31.25	20.00	17.50	11.25
10 1/2	367.20	42.20	29.96	23.59	15.16
11	342.00	40.00	25.60	22.40	14.40

GALVANIZED PIPE

Size ins.	Winnipeg	Calgary Edmonton Lethbridge and Medicine Hat.	Saskatoon	Regina	Brandon
1 1/2	8.69	0.30	0.20	0.17	0.11
2	7.79	0.53	0.34	0.30	0.19
2 1/2	8.01	0.70	0.45	0.40	0.26
3	9.27	1.05	0.67	0.59	0.38
3 1/2	11.66	1.40	0.90	0.79	0.51
4	17.19	2.08	1.34	1.17	0.75
4 1/2	23.27	2.80	1.80	1.57	1.00
5	27.81	3.35	2.15	1.88	1.21
5 1/2	37.40	4.50	2.88	2.52	1.62
6	60.71	7.18	4.60	4.02	2.68
6 1/2	79.43	9.42	6.03	5.28	3.39
7	99.63	11.25	7.20	6.30	4.05
7 1/2	118.04	12.33	8.53	7.46	4.80
8	142.20	15.61	10.04	8.75	5.62
8 1/2	165.60	18.12	11.60	10.15	6.52
9	214.20	23.45	15.00	13.14	8.44
9 1/2	299.09	29.09	18.62	16.28	10.45
10	312.25	31.25	20.00	17.50	11.22

Range Boilers Reduced

Winnipeg.

The quotations on range boilers have been reduced. These goods are not moving very fast at the present time. A few orders are being shipped but they are small and are usually for immediate requirements. Wholesalers' stocks are low and the new prices are the following:

Range Boilers—30 gal., \$13; 35 gal., \$15; 40 gal., \$17; 52 gal., \$24; 66 gal., \$32; 82 gal., \$40; 100 gal., \$50; 120 gal., \$60.

Plumbers' Oakum Now Lower

Winnipeg.

Plumbers' oakum is reduced in price and is now selling at \$5 per bale.

Sheets are Unchanged

Winnipeg.

No change has been made here in the price of black or galvanized sheets during the past two weeks but a lower tendency seems probable and is expected. The present quotations are as follows:

Black 10 ga., \$7.30; 12 ga., \$7.30; 14 ga., \$7.35; 16 ga., \$7.45; 18 and 20 ga., \$7.95; 22 and 24 ga., \$8; 26 ga., \$8.05; 28 ga., \$8.40.
Galvanized 10 1/2 oz., \$10.95; 28 ga., \$10.55; 26 ga., \$9.95; 24 ga., \$9.80; 22 ga., \$9.80; 18 and 20 ga., \$9.65; 16 ga., \$9.50.

Canada Plate Prices Hold

Winnipeg.

Prices of Canada plate have not been changed since the reduction made last month. Stocks are improving but busi-

ness is quiet. The following are the present quotations:

Canada Plate.—Ordinary, 18 x 21, \$11.50 per box; 18 x 24, \$11.50; 20 x 28, \$11.75.

Eavestrough is Unchanged

Winnipeg.

With the warmer weather coming

there is a little more demand for eaves-trough and conductor pipe and elbows. Prices are unchanged and are the following:

Eavestrough.—8 in., \$7.20 per 100 ft.; 10 in., \$7.88; 12 in., \$9; 15 in., \$13.05.

Conductor Pipe.—2 in., \$9 per 100 ft.; 3 in., \$10.40; 4 in., \$13.73; 5 in., \$18.90.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

WATERWORKS, SEWERAGE, ETC.

Ailsa Craig, Ont.—W. McCallum, R. R. No. 1, Ailsa Craig, Ont., clerk East Williams Township Council, has plans and will receive tenders until April 25th for construction of drain.

Albert, N.B.—Town is constructing waterworks system at cost of \$10,000.

Street, and will receive tenders, no closing date set, for plumbing and heating.

St. Rose du Degele, Que.—Tenders will be called shortly for erection of school estimated to cost \$10,000 for school commission.

Pointe Claire, Que.—Secretary-treasurer of town council will receive tenders until April 16th for extension to sewer and waterworks system estimated to cost \$130,000. Plans with secretary-treasurer and Mr. Beauboin, engineer, 71-A St. James St., Montreal.

Saskatoon, Sask.—Dr. E. H. Oliver, principal Presbyterian College, Saskatoon, has plans and will receive tenders until April 23rd for erection of college estimated to cost \$170,000.

Strathmore, Alta.—D. French, president Great War Veterans' Association, Strathmore, will receive tenders, no closing date set, for erection of Memorial Hall estimated to cost \$10,000. Plans with Hay & Herral, architects, 312 Beveridge Building, Calgary.

CONTRACTS AWARDED

Ottawa, Ont.—H. Dagenais, 227 St. Patrick Street, general contractor for rebuilding "St. Ann's" Hall at cost of \$175,000 for Le Cercle Social St. Anne, has plumbing contract.

St. Marc, Que.—Plumbing and heating contracts for school costing \$50,000 for school commission are awarded to J. A. R. Seguin, 254 Cascades St., St. Hyacinthe.

Cap de la Madeleine, Que.—Additional contracts for erection of convent costing \$80,000 for Filles de Jesus are: Plumbing, Massicotte & Freres, Inc.

Halifax, N.S.—Contracts for altering building into offices at cost of \$10,000 for Wentzells, Ltd., Barrington Street, are: Heating, D. Cummings & Co., Water St.; plumbing, M. Day, Cornwallis Street.

Three Rivers, Que.—Plumbing contract for tenements costing \$8,000 for Patrick Parenteau, 164 St. Francois Xavier St., is awarded to Alfred Frenette, 8 Ste. Marie St.

Hamilton, Ont.—McIntosh Granite Co., 1117 Yonge St., Toronto, has plans and will receive tenders, no closing date set, for erection of office and showroom estimated to cost \$20,000.

Woodstock, Ont.—Tenders will be called shortly for heating system for county gaol and residences in connection for Oxford County Council.

Edmonton, Alta.—A. M. Jeffers, architect, McLeod Building, will call tenders April 15th to close April 25th, for erection of residence to cost \$9,000 for John Michaels, 9850 102nd Street.

Hamilton, Ont.—Lewington & White, 32 Rosslyn Ave., have general contract for the store costing \$10,000 for Harry Clark, 376 Ottawa St., N. G. T. Evans, architect, 310 Clyde Building, will receive tenders, no closing date set, for plumbing and heating.

Montreal.—E. Meloche, 305 7th Ave., Rosemount, is awarded general contract for altering school into flats for Archevechê de Montreal, 471 Laugachetiere



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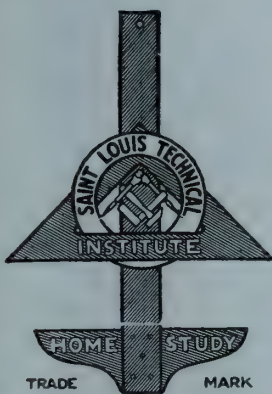
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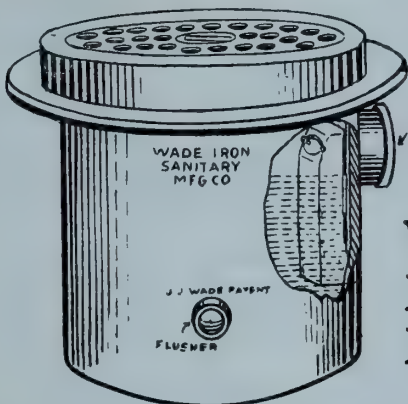


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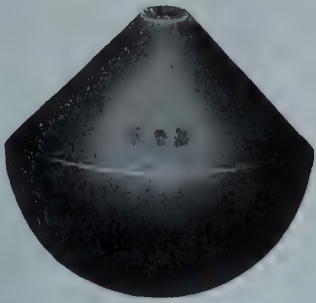
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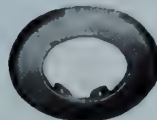
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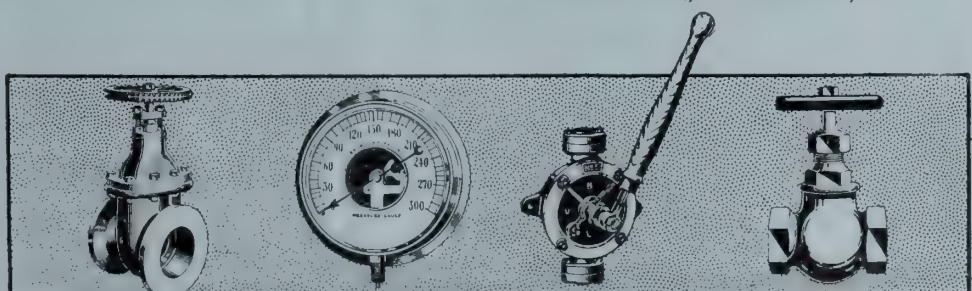
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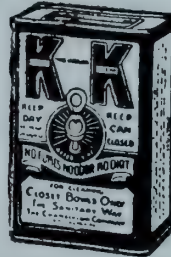
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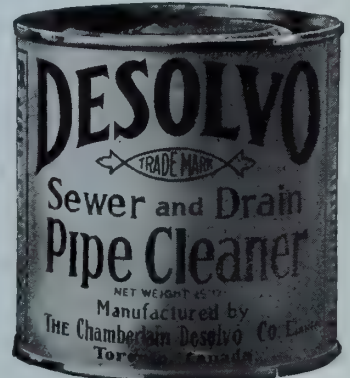
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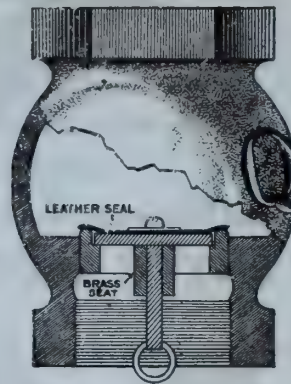
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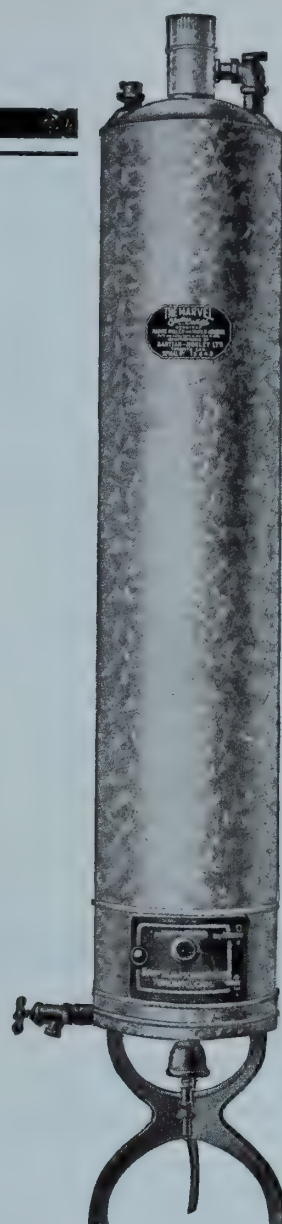
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INDEX TO ADVERTISERS

Allison, K. B.	9
Aberst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Atlas Tank Works	52
Bastian Morley, Ltd.	51
Beaton & Caldwell	45
Borden Can. Co., Ltd.	39
Campbell & Co., P.	52
Canadian John Wood Mfg. Co.	7
Canadian Veneering Co., Limited.	4
Canada Metal Co., Limited	11
Canadian Brass Co.	2
Canadian Tube & Steel Products, Ltd.	45
Chamberlain Desolve Co.	49
Cleveland Gas Burner & Appliance Co.	52
Crane Limited	3
Cunningham & Co., W. H.	47
Dominion Sheet Metal Corp., Ltd.	1
Empire Manufacturing Co.	Outside front cover
Fitting, Ltd.	52
Galt Brass Co.	Back cover
Hause Mfg. Co., Chas. F.	52
Hoyt Metal Company	49
International Malleable Iron Co.	43
Jardine & Co., A. B.	7
Kerr Eng. Co., Ltd.	4
Lord & Burnham, Ltd.	5
Marks & Co.	52
McDougall & Co., R.	50
McIntyre & Taylor, Ltd.	49
Morrison Bras Mfg. Co., Ltd., Jas.	9
Montreal General Tool Co., Limited.	6
Mueller Mfg. C., H.	41
Ontario Metal Products Co., Limited.	49
Port Hope Sanitary Mfg. Co.	26-27
St. Louis Technical Institute	45
Standard Sanitary Mfg. Co.	12
Steel Trough Machine Co.	52
United Brassfounders & Engineers, Ltd.	47
Wade Iron & Sanitary Mfg. Co.	45
Warden-King, Limited	6
Wesco Pumps, Limited	50
Williams & Co., J. H.	48
Wolverine, Limited	50



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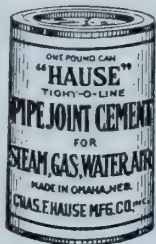
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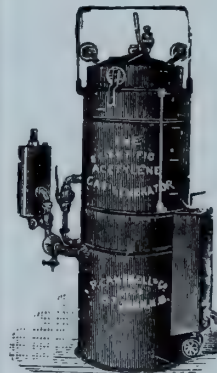
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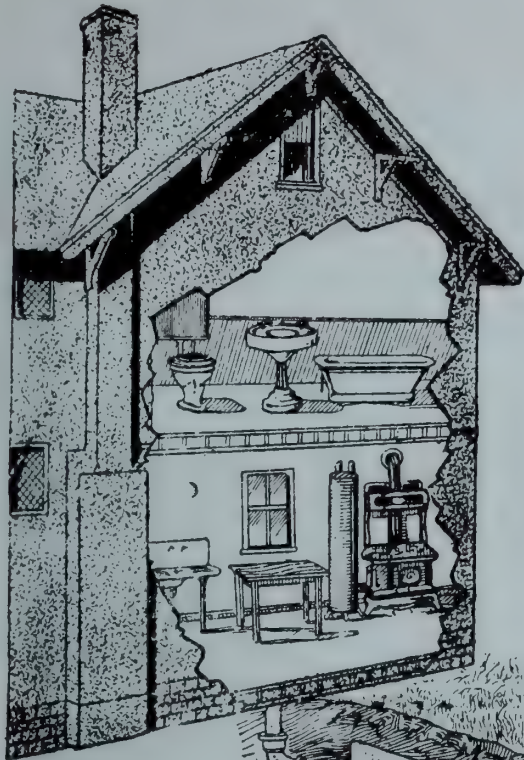
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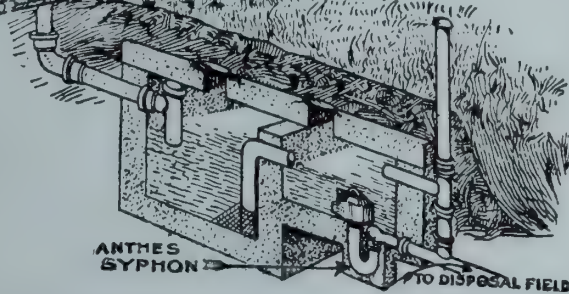
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Science has demonstrated that isolated dwellings can be made just as sanitary as communities, and the "Anthes" Syphon does for the farm what the trunk sewer does for the city.

ANTHES FOUNDRY LIMITED

Manufacturers Cast Iron Soil Pipe and Fittings

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PERFECTO BRASS GOODS



Why It Is Important that Every Piece be Perfect

IT is of little benefit to you to know that a certain percentage of the brass goods you buy will be perfect. The customer isn't buying them by the dozen or the gross. He buys one, and if the one he gets isn't perfect he is not interested in knowing that ninety-nine other ones are.

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So, when you sell your customers PerfectO Brass Goods you are selling them perfect articles—articles that will give them the best service for the longest period—articles that will *satisfy* permanently.

Makers of
VITRO
NO TROUBLE
TANKS

GALT BRASS COMPANY

LIMITED

GALT - - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, MAY 1, 1921

No. 9



Another New Empire Product

The Empire line continues to grow.

Here is one of the latest, our Empire centrifugal trap with adjustable nickel-plated sink connection, and with clean-out at bottom.

A trap with centrifugal action of this particular design will meet with universal approval.

Empire products are strictly Canadian made and are obtainable from the leading jobbers throughout the Dominion.

Always specify Empire when ordering.

"If it's an EMPIRE product you know it's right."

**Empire Brass Manufacturing
Company, Limited**
London and Toronto, Canada



**Cast-Iron
Centrifugal
Trap
A-1829**

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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TINKER TOM'S TALKS.

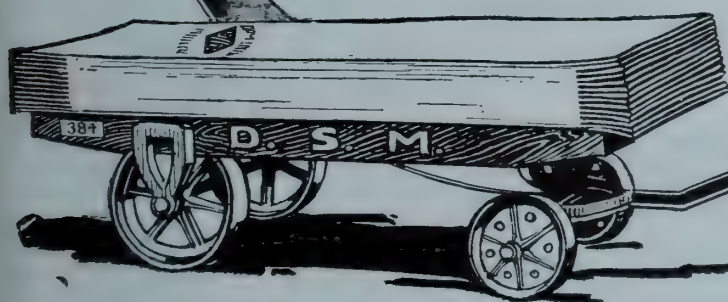
No. 309

We talked to one of the shrewdest buyers in the sheet metal business the other day about prices of Galvanized Sheets. In the last six months his house has bought sheets from U. S. mills, English Makers, and of course, Premier Made-in-Canada.

To use his own words, "We would have been ahead thousands of dollars and saved a lot of worry and bother if we'd stuck to the Canadian Sheet."

Now, sir, why not get wise? This is the time to buy. Sheets are once more in good demand. Give your jobber an order for this season's needs.

TINKER TOM.



Quality

is an essential in the upbuilding of any business with permanence. Quality is one of the three legs of the Tripod of Business. This Tripod is as necessary to the stable support of business as is the Famous Tripod of Life—the heart, lungs and brain—to human existence.

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represents the second leg of the business tripod. Without efficiency there can be no success, because efficiency signifies a satisfactory relation between the result obtained and the effort invested. We burn so much coal to obtain a certain horsepower in steam. We invest a given sum of money in business; if the business is efficient it produces a satisfactory return.

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is the positive complement of Quality and Efficiency, without which they could no more stand alone than could a three-legged stool with one leg lacking. The amount of our service to society at large is practically the measure of our receipts from the world—especially in business.

Canadian Brass Company

Limited

Galt - Toronto

EVENTUALLY! WHY NOT NOW?

The Pilot Superior Pipeless Furnace

Easily Installed.

Abundance of heat.

Saving of 25% in your Fuel.

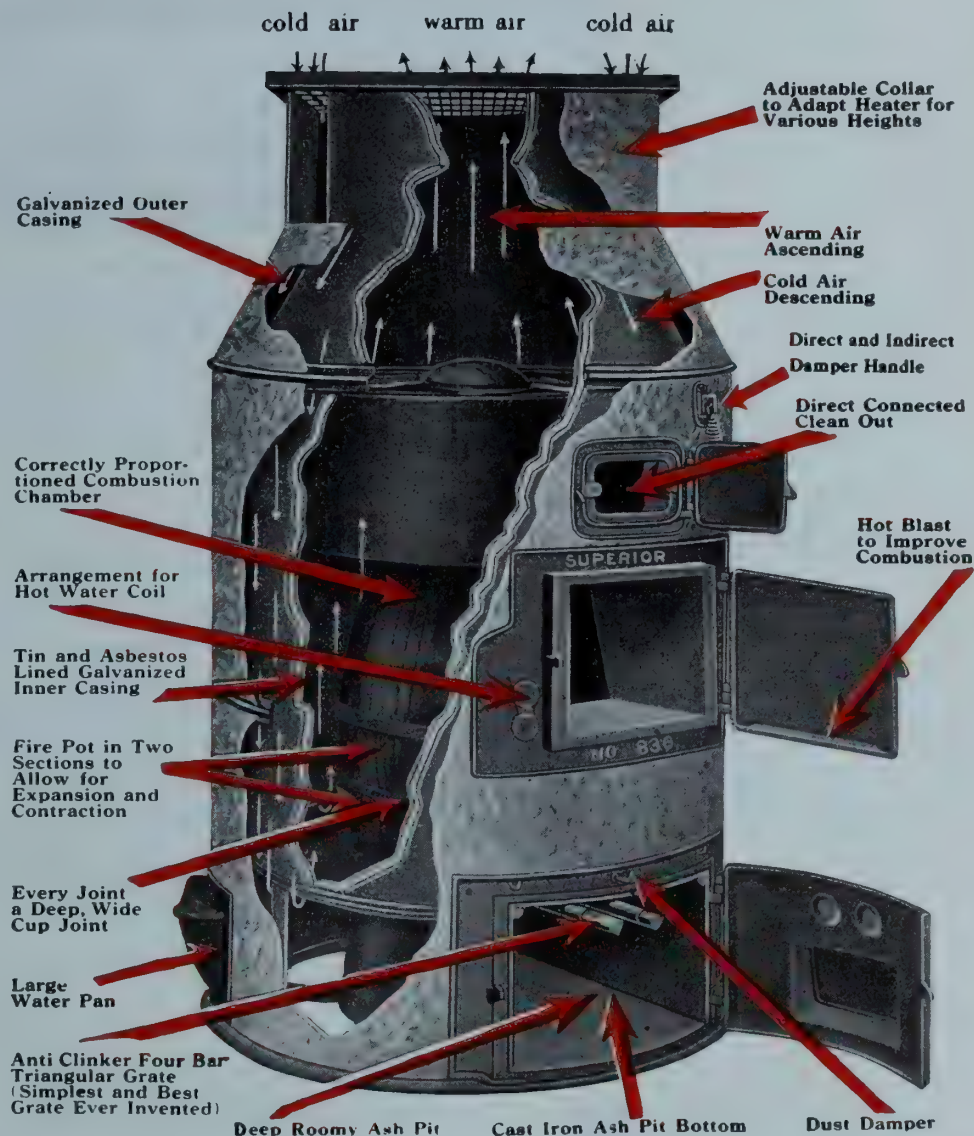
More Sanitary Heating.

The most up-to-date and satisfactory heating system in existence to-day.

Very profitable line to the Dealer.

Write to-day and secure agency.

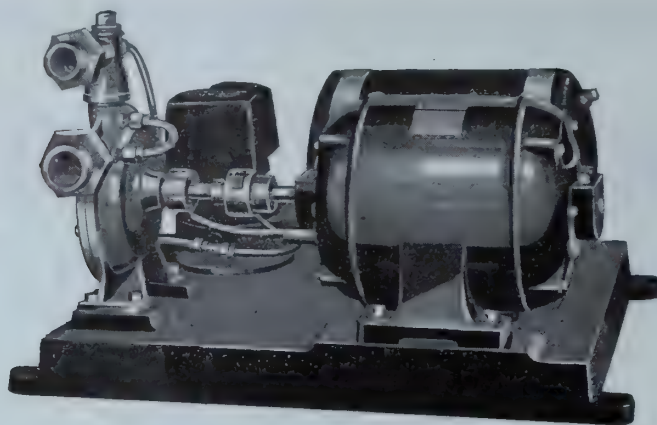
We will assist you in making sales.



The HALL ZRYD FOUNDRY COMPANY, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces
HESPELER, ONTARIO

WESTERN BRANCH : P. O. BOX 687, WINNIPEG, MANITOBA



This Is The Pump

WHEN looking at the usual Water System you have been used to seeing a great big tank with a complication of wheels, and gears, and belts and springs close by.

When looking at the Westco Water System, you can look for them, but as they do not exist, you cannot find them.

The

Westco

Tankless Water System

is so efficient because its construction is so simple and its action is so direct.

The **only moving part** is the impeller. This revolves free in the water channel, and therefore is practically wearproof.

The Westco Tankless Water System is one of the best, most profitable lines ever handled by a dealer.

The new systems going on the market are fitted with an

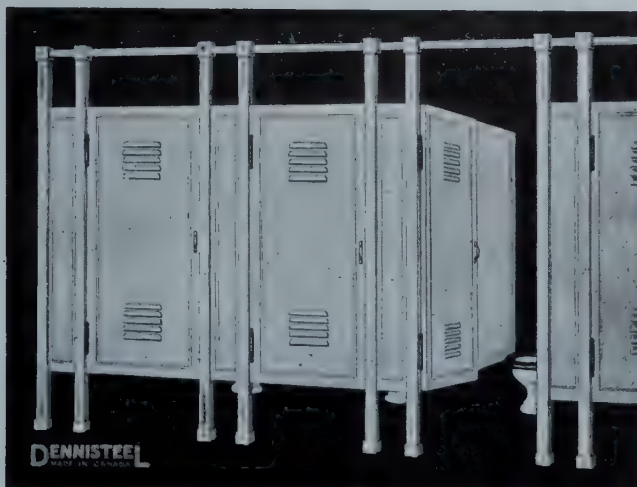
*All - Bronze Pump and
New Westco Two - Pole Pressure Switch*

Write us for particulars as to our Dealer Co-operative Plan, etc.



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707 Yonge Street
Toronto, Ont.



ARE YOU GOING TO GET THAT SCHOOL JOB?

You can get it if you become our representative and recommend our Steel Lavatory Compartments.

Dennisteel Lavatory Compartments are recognized all over Canada as the very best sanitary equipment for schools and public buildings. Schools, large and small, and all principal places are installing Dennisteel Compartments.

Dennisteel Lavatory Compartments are finished in baked-on enamel of any desired color. They are carefully crated for shipment.

Our designers are at your service. We guarantee prompt shipment.

We also make

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Commercial Wirework of all kinds.
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THE DENNIS WIRE AND IRON
WORKS CO. LIMITED
LONDON
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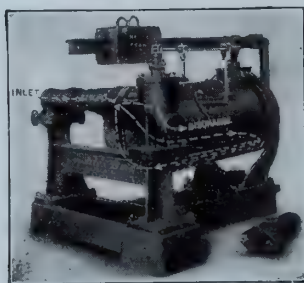
places within your reach, through numerous show-rooms and branches, the most advanced ideas on

Heating and Plumbing Equipment

FOR BUILDINGS OF ALL KINDS AND SIZES



Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.



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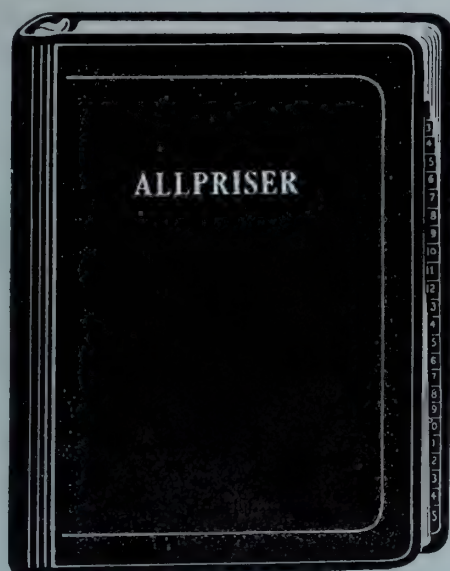
Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO,
WINNIPEG, REGINA, CALGARY,
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Sales Offices:
QUEBEC, SHERBROOKE,
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Kenneth B. Allison
4 Irwin Ave. Toronto

No Complaints



Fig. 106
JENKINS
BRASS GLOBE VALVE
Suitable for 175 lbs. working steam
pressure or 250 lbs. working water pressure.

The Jenkins Diamond Mark is the symbol of valve service—that unerring service which is an assurance against complaints and “come backs.”

Superior construction is the secret of Jenkins dependability. A much heavier and stronger metal is used and the weight is so carefully distributed as to leave no weakness at any point.

With a record of satisfaction in every service since 1864 it is but natural that several imitations of the genuine Jenkins should appear on the market. As “complaint free” Service goes only with the **genuine** it is good policy to always ask for Jenkins by name and to look for the Diamond Trade Mark on the body of the valve.

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BRANCHES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD

The Publisher's Page

TORONTO

MAY 1, 1921

TWO FACTORS determine the value of a paper's circulation to the advertiser—quality and quantity.

The quality may be judged by the methods of obtaining subscriptions.

The quantity may be known absolutely by an independent and expert audit of the circulation records.

Both points are covered by the reports of the Audit Bureau of Circulations.

The advertiser who buys space on a business basis asks for an A.B.C. statement and studies it.

If an advertiser who does not demand an A.B.C. statement conducted the other branches of his business on the same method, he soon would not have any business to conduct.

An advertiser is entitled to the facts. An A.B.C. paper has nothing to hide.

Sanitary Engineer is the only Plumbing, Heating and Tinsmith publication in Canada that has submitted its circulation to the Audit Bureau of Circulations for an A.B.C. Audit.

SANITARY ENGINEER
PLUMBER *and* STEAMFITTER of CANADA

143-153 University Avenue

Montreal Branch, Southam Bldg.

TORONTO, CANADA

Winnipeg Branch, Union Trust Bldg.

The Facts Are That—

“Welding will not be permitted, unless such welding is fully cared for by properly riveted-on patches, or straps, placed over the weld.”

*Extract from decisions made by
Engineers of Boiler Insurance
Companies in Canada and the
United States.*

Safety First!

Specify Riveted Range Boilers

Toronto Hardware Mfg. Co.
Limited
Toronto, Canada

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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TORONTO, MAY 1, 1921

No. 9

CONTENTS

Unwarranted Abuse of Tinsmiths	13
Arguments for Sanitary Installations	14
Some Plumbing Display Suggestions	15
Practical Sheet Metal Work	17
Importance of Rural Water System	18
Sewage Disposal for Small Communities	19
Combination Heating Systems	20
Plans for Public Comfort Stations	21
Facts About Warm Air Installation	23
Editorial Comment	24
News of the Trade	25
Current Market Quotations—Montreal, Toronto, Winnipeg	30-36

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JOHN BAYNE MACLEAN, *President.*H. T. HUNTER, *Vice-President.*H. V. TYRRELL, *General Manager.*

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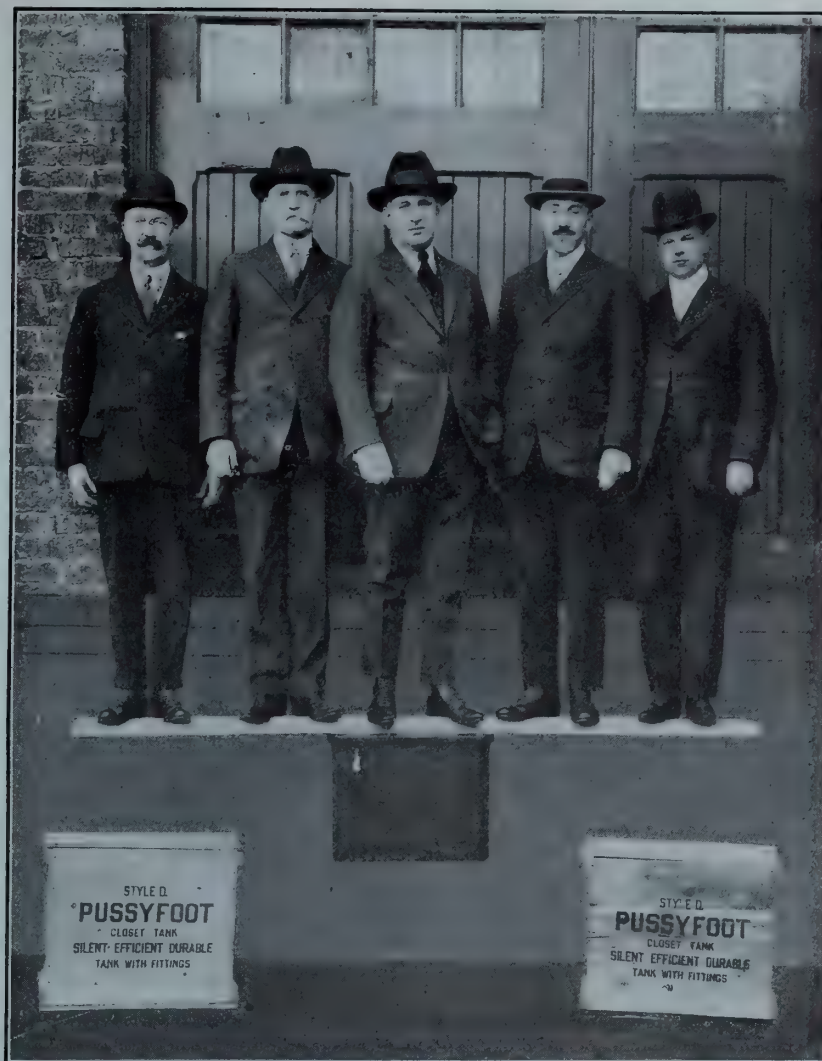
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TESTING THE STRENGTH OF HANGER

Another Excellent Feature of

The "PUSSYFOOT" Closet Tank

is that the strength of the hanger is absolutely guaranteed and is illustrated by the test of its ability to support the weight of

FIVE MEN

Not only is the "Pussyfoot" the most attractive looking tank in Canada to-day, but it has a life-long guarantee.

The tests tell you why you can recommend it with confidence.

Specify "Pussyfoot" to your jobber.

The Canada Metal Co., Limited

Hamilton

Montreal

TORONTO

Winnipeg

Vancouver

"Standard"

PLUMBING FIXTURES

To-day's Higher Standards of Living Mean More Business For Plumbers

Bathrooms are no longer hidden under the back stairs. They consider the bathroom the most important room in the house and are willing to spend more money on it.

Modern taste and cultivation demand, not only sanitary and hygienic efficiency in plumbing fixtures, but beauty and luxury as well.

The extent to which you interpret to-day's desire of the consumer with carefully planned displays counts much in your volume of business.

People to-day want the sanitary cleanliness, also the comfort and convenience of modern fixtures. Show them and the natural desire of better living will do the rest.



Standard Sanitary Mfg. Co. Limited

General Office and Factory:

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Toronto Store:

55-59 Richmond St. East

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358 Beaver Hall Square

Calgary:

325 Eighth Avenue West

Hamilton Store:

20-28 Jackson St. West

Winnipeg Showrooms:

76 Lombard Street

Vancouver

860 Cambie Street

Unwarranted Abuse of Tinsmiths

Inland Revenue Inspectors Threaten Tinsmiths Who Do Not Take Out Manufacturers' License and Make Returns of Sales Tax—High Official of Department at Ottawa Says Tinsmiths Not Liable as Manufacturers Pending Test Case—Some Technical Points Explained

Ottawa, April 21—"Where tinsmiths are selling to consumers they are not asked to collect and pay to the Government the manufacturers' tax until the test case against Ottawa tailoring firm is decided. If the finding of the case is that merchant tailors are not manufacturers, then same will apply to tinsmiths."—Department of Inland Revenue, Ottawa.

THE point brought out in the above official message from a high official of the Department of Inland Revenue at Ottawa, in answer to an enquiry by Sanitary Engineer, confirms the previous statements made by this paper as to the status of tinsmiths and is ample justification for tinsmiths who are being informed otherwise by local Inland Revenue inspectors to take issue with them on this question.

During the past week Sanitary Engineer has received a number of enquiries concerning this matter. While it was definitely stated in previous issues that tinsmiths were not liable to the manufacturers' license and to collect 2 per cent. sales tax on sales to consumers of lines "manufactured," the recent enquiries have come as result of the fact that Inland Revenue inspectors are telling the trade that the test case at Ottawa against merchant tailors has nothing to do with tinsmiths and that the latter are responsible as manufacturers.

Some indication of the attitude being taken by inspectors is gleaned from the following verbatim report of a conversation between an inspector of the Inland Revenue Department and an Eastern Ontario tinsmith during the week. That the officer was exceedingly overbearing, is evident from the following conversation :

I. R. O.—Mr. —, is it?

Merchant—Yes.

I. R. O.—I am from the Inland Revenue Department. I want to see your books.

Merchant—What books do you wish to see?

I. R. O.—I want to see all your books. I have the authority and I am going to see them!

Merchant—That's all right, but in what connection?

I. R. O.—In connection with your tinshop.

Merchant produces book where workmen have entered charges. These have been crossed out as entered on the firm's books.

I. R. O.—You had no right to cross these out in this manner.

Merchant—We have done this ever since we have been in business.

I. R. O.—You had no right to. I can't read them.

Merchant—The workmen didn't write them for you to read.

I. R. O.—Now I will take possession of your office.

Merchant—I will read these charges if it will be of any assistance.

I. R. O.—All right. Produce the ledger in which it is entered.

After some minutes' hunting the item is found and is copied on a paper. The next three items are for cleaning stoves, etc.

I. R. O.—It would take me a week at this rate to get the figures.

I. R. O.—What is your license number.

Merchant—Haven't such a thing.

I. R. O.—You should have. This tax should have been paid since May 19. Our men have been here four or five times trying to get you to make returns.

Merchant—There has never been an officer enter the door or a single letter from the department.

I. R. O.—Any way, you knew you had to pay this.

Merchant—We understood it hinged on the test case to be tried.

I. R. O.—This has no connection with you. It is very funny every other tinsmith has made returns.

Merchant—It is too bad we are the only exception in Canada, as we generally plan to pay what we should.

I. R. O.—I will be back in a few days' time and if returns are not ready, the law will take its course.

EXIT.

Tax on Purchases

An enquiry from another tinsmith states that he has received notice that his license fee (manufacturers' license) was again due. "I understand that the only difference it would make to me by taking out this license is that I will only have to pay 1 per cent. sales tax on goods purchased by me in place of 2 per

(Continued on page 16)

Arguments for Sanitary Installations

No Need to Wait For New Building Operations—Many Plumbing Renewals Required in Existing Buildings to Maintain Sanitary Conditions—True Value of Sanitary Appliances to the Public Health

By Thomas Darlington, M.D., ex-Commissioner of Health of New York.

I AM not interested in the matter of what manufacturers and jobbers of plumbing fixtures sell. I look at things from an entirely different standpoint. At the same time I am perfectly willing to give some suggestions along that line. I see no necessity, from my standpoint, of waiting for new building operations. You can sell all you have made, and more, too, if you only go at it in the right way.

How can I help you? Everything that you people make has to do with health. I put health above everything else.

Preventive medicine is the great thing of to-day. Suppose the wage-earner of a family dies, what happens to his children? The boy has to leave school at fourteen, while the girl has very little chance.

Health is our first consideration. What is it we want most of all? Production. What does this depend on? Health. I wonder if I can show it to you.

In this country, how many privies are there? How many places in industry have dirty waterclosets? How many have a first-class flushing system? We are frequently told there is no use putting in a good installation. Where a first-class installation has gone in, I have never seen a dirty seat. The great trouble is few put in the right installation. Frequently the seats are entirely too small, measuring nine inches across. If you want to put in a seat that is right, it must be fourteen inches and made in oval form.

Can you not sell toilet seats in the places that have not got them to-day by means of the foregoing example? I am not interested in how much money you make out of it. I am interested in having the people in this country in a better mood by having proper facilities and having their minds in a better condition.

Need of Fresh Water

Let us take this same mill that I spoke of. I noticed during the day that there were three hundred men who carried pails of drinking water into the mill. Then the water got warm in the mill and some men put ice in it. They bought the ice themselves and put it in the water. This, in some instances, produced cramps, and frequently a man blames it on his wife for something she gave him for breakfast in the morn-

ing. This is the customary and easy thing to do.

We figured it up and found the expense was \$22,500 a year for these men. We then figured putting in a great big tank of filtered water, and then cooling it with refrigerating pipes, fixing the temperature at 48 degrees, circulating through pipe through the mills at about 52. At every 25 feet was placed a sanitary drinking fountain. The fixed charges were lessened \$20,000 a year.

Can you not pipe every mill in this country if you can show that you can save \$20,000 a year? Think of a plant a mile and a half long with quadruple rows of fountains every 25 feet. It is a pretty good job.

What benefits resulted from these drinking fountains? All cramps disappeared. But what else? What is the value of drinking water to the system? What good is it to the drinkers? You can live thirty to forty days without food, but you can only go five days without water. Why? Because you need it for the blood, and you need it for the kidneys to get rid of the waste. With every breath you breathe out water from your lungs. You see it on a cold day. But on a hot day in summer you breathe out much more, and very much more in Arizona than in Florida.

What good is water to a system? In the first place, the body is made up of water; that is, two-thirds of it is water. Even the teeth contain water. What do we need it for? Excretion and secretion—excretion to get rid of these products, and secretion—well, we have a little important gland in the brain; we have another important gland in the neck, called the thyroid; a couple of glands in the back at the top of the kidneys known as the adrenals, and many others.

These glands regulate our body and the regulation of the body depends much on two things—the amount of fluid in the body and the condition of your brain, whether you think right or not. If you are angry, the adrenals work too fast and that stops secretion of the gastric juice and various other secretions in the body, but a great deal depends on the pressure of water and pressure of fluid. Fluid lessens friction in the body. We drink water also to dissolve the food.

Wash Basins

Let us next consider the value of wash

basins. How important is it to wash your hands?

Look in all these great industrial concerns throughout this country and see the men who take food out of a lunch basket that has been put up at home and eat it without washing their hands. Perhaps they have just been to the toilet or have had their hands in some dirty or filthy place. Do you wonder they are sometimes ill?

I was in Hog Island as consulting surgeon. We were looking for causes of disease. We looked in the kitchen where a lot of men had their hands in the dishwater. Examining the dishwater we found many kinds of bacteria in it. Where did they come from? Their hands were dirty when they put them in the water and the germs came off. These men had never learned to wash their hands.

Shower Baths

That brings me to another topic, that is the question of shower baths. What do shower baths mean? Simply to keep clean? No; nothing of the kind. I spoke of energy and getting tired. Some people who work very hard do such, as men who work down in mines. If, when they finish their work, they could have a shower, they would be very quickly relieved of much of this distressing fatigue.

If you can strip off and get under a warm shower, use soap and get off all the dirt, and then gradually turn off the warm water until the water chills you, all the fatigue poison will be driven in, and then as you turn the warm water on again it again brings the blood to the surface. This dilutes the pores and sends the poisons again out of the kidneys and out of the body, so much so that no matter how tired a person is at 5 o'clock in the afternoon, if they take a shower of this kind and change their clothes, the fatigue of the day has gone. They are then ready to eat their food when they get home.

In all these things we need these sanitary appliances of yours to fight misery, to fight sickness, to fight disease. I have unlimited hope and an abiding faith in the future.

Plans are being prepared at Highgate, Ont., for a memorial hall to cost \$9,000. Prices wanted on heating and electrical work.

Some Plumbing Display Suggestions

Goods Well Displayed Are Half Sold—Window Displays Can be Used by Progressive Plumbing and Heating Operators to Good Advantage—Some Valuable Suggestions on This Subject by the National Trade Extension Bureau

ACCORDING to the best definition, that is supported by the experience of merchants of every sort, merchandising (selling) is the process of creating and supplying of demand. In the plumbing and heating industry, demand, naturally, refers to the demand for plumbing and heating equipment. Good merchandising, of course, means that these operations will be conducted at a profit.

Three elements enter into the activities of merchandising—buying, displaying, selling.

The function of buying is, of course, of serious importance, but the concern of this particular article is with the displaying and selling of goods. We take it for granted that the usual plumbing and heating contractor is capable of buying wisely and well.

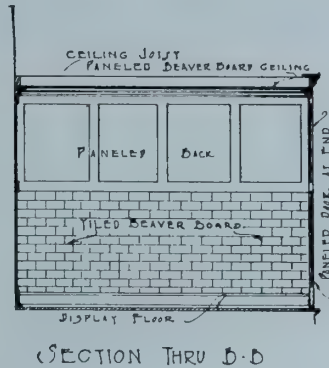
The proper display of merchandise is highly important with reference to successful selling. It is in the performance of this particular requirement that many plumbing and heating contractors are exceptionally weak.

Locating the Store

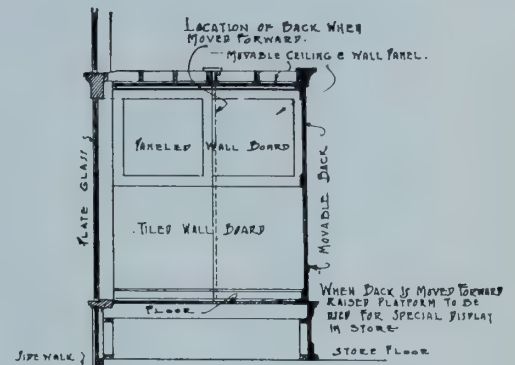
The best means of display available to the plumbing and heating contractor is his show window. It is obvious that the value of the show window is established by the location of the store, with reference to the number of people who pass it daily.

Big chain stores and department stores are seldom located and opened until after a very thorough study is made of the business section of the town. Actual records are taken of the number of people who pass every acceptable location, before a store site is definitely decided. Only the best points are selected, even if this compels a delay of several months before the desired location can be obtained. As this class of establishments is recognized as being operated by the keenest minds in the merchandising field, their methods offer suggestions to the plumbing and heating contractor that are worthy of serious attention.

A plumbing and heating contractor's store should be on a main street, and not on a side street or alley entirely away from the main flow of traffic. In other words, the location of the store ought to be the best possible that can be secured, with due regard to the amount of owner's capital and possible volume of business that can be handled on that capital. The location of your store should be the best possible that you can secure for the price allowed for rent.



(SECTION THRU B-B)



SECTION A-A

Take a count of the people that pass your present store in one day and compare it with the count of those passing a good location in the business section of your town, and you may find that you should move to a better location. As a matter of fact, this very thing has been done by plumbing and heating contractors in numbers of cases, and invariably on increase of business has resulted that has more than paid for the increased expense for rent.

The Show Window

Now let us consider the window. Of course, the window must be constructed right if the best results are to be obtained. An opaque back should always be provided to extend at least above the level of the eye. If at all possible the back should meet the window top. Unless the store ceiling is exceptionally low, a space should be allowed between the ceiling and the window top for light, and possibly for ventilation of the front part of the store. This space, above the show window top, is an excellent place to paint the dealer's name. With the window back extending to the ceiling, the store front is dark and depressing and has a bad effect on the entering customer. A way to remedy this defect, if the back must extend to the ceiling, is to put frosted or chipped glass at the top of the window-back, thus letting light enter the store through the window. If clear glass is used, care must be taken that such glass does not extend so far down that observers of the window can see enough of the store interior to distract their attention from the window trim. The closing-in of the windows need not be costly, as wall board can be used in panel design with good effect and at moderate cost. (See Fig. 2.)

With an open-back window, unless

back of the window is closed, it is impossible to get the observer's attention centred on the display. Attention is bound to be diverted to the store, particularly if persons are seen moving about. These bad features are multiplied at night when the window is lit up. The observer then gets a mixed-up view of window and store, and no impression that would stimulate buying is readily possible.

The color of the window finish must receive consideration, as colored surfaces play an important part in all window displays. A dark background must be avoided; otherwise the plate glass will serve as a mirror, and your window, instead of influencing women to come inside and purchase, will cause disinterested ladies to use it as a looking-glass to powder their noses. Also dark background on sunny days cause the glass to reflect everything that passes the window and, consequently, make it difficult to see the display.

In northern climates, care should be taken to have the window glass free from frost during freezing weather. This can be done by proper ventilation, which will keep the air temperature in the window the same as the outside temperature; if the heat from your heating plant is dry enough, there will be no moisture in the air to condense and freeze on the window. If the foregoing conditions cannot be met, an electric fan can be placed in the window pointed toward the glass. The moisture condensing on the glass will be evaporated by the breeze quickly enough to prevent the forming of frost.

Another remedy is to clean the glass thoroughly and then rub the inside surface with a chamois or soft cloth dipped in a solution of one ounce of glycerine in a pint of alcohol (denatured alcohol will answer the purpose). A little amber oil can be added to improve the

odor; the solution should stand till it clears. This treatment is inexpensive and not at all difficult.

Lighting the Show Window

All show windows should have the best illumination—both as to intensity and arrangement.

In a properly lighted show window there is sufficient illumination but no glare. An attractive display is largely discounted by poor illumination, whereas its value is greatly enhanced by proper illumination. As show windows occupy an appreciable part of the store area, it is inconsistent not to make window-space pay full returns on the investment represented by their frontage and area. Windows work at highest efficiency only when they show the goods to the best advantage, both during the evening and in daytime.

The evil of insufficient lighting is obvious, as nothing detracts so much from the appearance of a store as a dimly lighted window. Goods worthy of placing in the window are worthy of proper lighting; if they are not easily seen, the value of the window as an advertising medium is lost. On the other hand, the use of an unnecessary number of exposed high intensity lamps which dazzle the eye will turn the onlooker away because of this excessive brilliance. An exposed high-power lamp, hanging low in a shallow reflector, wastes half of its light on the sidewalk instead of being concentrated on the display where it belongs. The blinding glare from such illumination repels rather than attracts prospects.

A valance, either of cloth or painted on the glass, can be used to conceal the reflector. This kind of illumination directs the light on the goods and the benefit of all the light is received; no current is wasted in lighting the sidewalk and the observers.

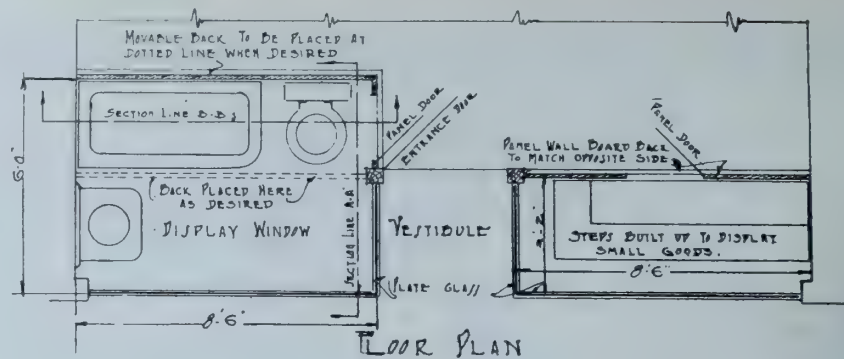
Color Important

Both the color of the window finish and the goods displayed must be considered in determining the intensity of the illumination. Disregard of these features has caused many a display to appear dull and uninteresting in tone. It is best to have the window lights arranged so that some can be turned off or on, as results indicate.

The following table shows the percentage of light reflected by different colored surfaces and will assist in determining how much light to use in window displays:

Dark blue	6½%
Dark green	10%
Pale red	16%
Dark yellow	20%
Pale blue	30%
Pale green	46½%
Pale yellow	40%
Pale orange	55%
White	70%

It costs more to light a window finished in dark wood, such as mahogany, than



one finished in light oak. This is also true of draperies, and the color of the goods displayed.

In displaying white and polished wares care should be taken not to have too much light, as the high intensity brings out the reflections on the surfaces too forcefully; this is confusing to the eye of the observer. Study each arrangement and adjust the light till you get a beautiful soft tone on the entire display.

Do not neglect to keep the windows illuminated during the evening. Hundreds, who in the hustle and bustle of business have little time during the day, will stop at an attractive window in the evening hours and often see something which prompts a profitable visit to the store the next day. Use a time switch to cut off the lights, but don't darken your windows during the earlier evening hours.

Trimming the Window

The next step toward better merchandising is the actual trimming of the windows.

Your show window is the "face" of your business. Some windows are like tramps, neglected, ragged, grimy, and generally repulsive; others fairly sparkle with enthusiasm, intelligence and cheerfulness, radiating character and personality in every detail, attracting irresistibly, as does an electro-magnet, drawing the prospect to the sales counter.

Many dealers do not realize the value of their show windows. A department store values its windows at from \$35 to \$50 a day. A successful Chicago merchant moved his store and paid \$15,000 additional rent per year for the same amount of store space. The same number of people now pass his store as before, but now he has six show windows instead of his former two. Each additional window proved to be worth almost \$4,000 a year.

Window trimming is an art; but a little knowledge of the underlying fundamentals and a little practice will enable any plumbing and heating contractor to have windows that will sell goods—and a well-trimmed window will pay the rent.

In preparing window displays a great many lose sight of the fact that a window is to sell goods. If windows are not performing this function, if they

show only a pretty arrangement of merchandise, they are not serving their purpose.

To gain the attention of a passer-by, the window must be attractive and interesting, it must make a forceful appeal to some class or group of prospective buyers.

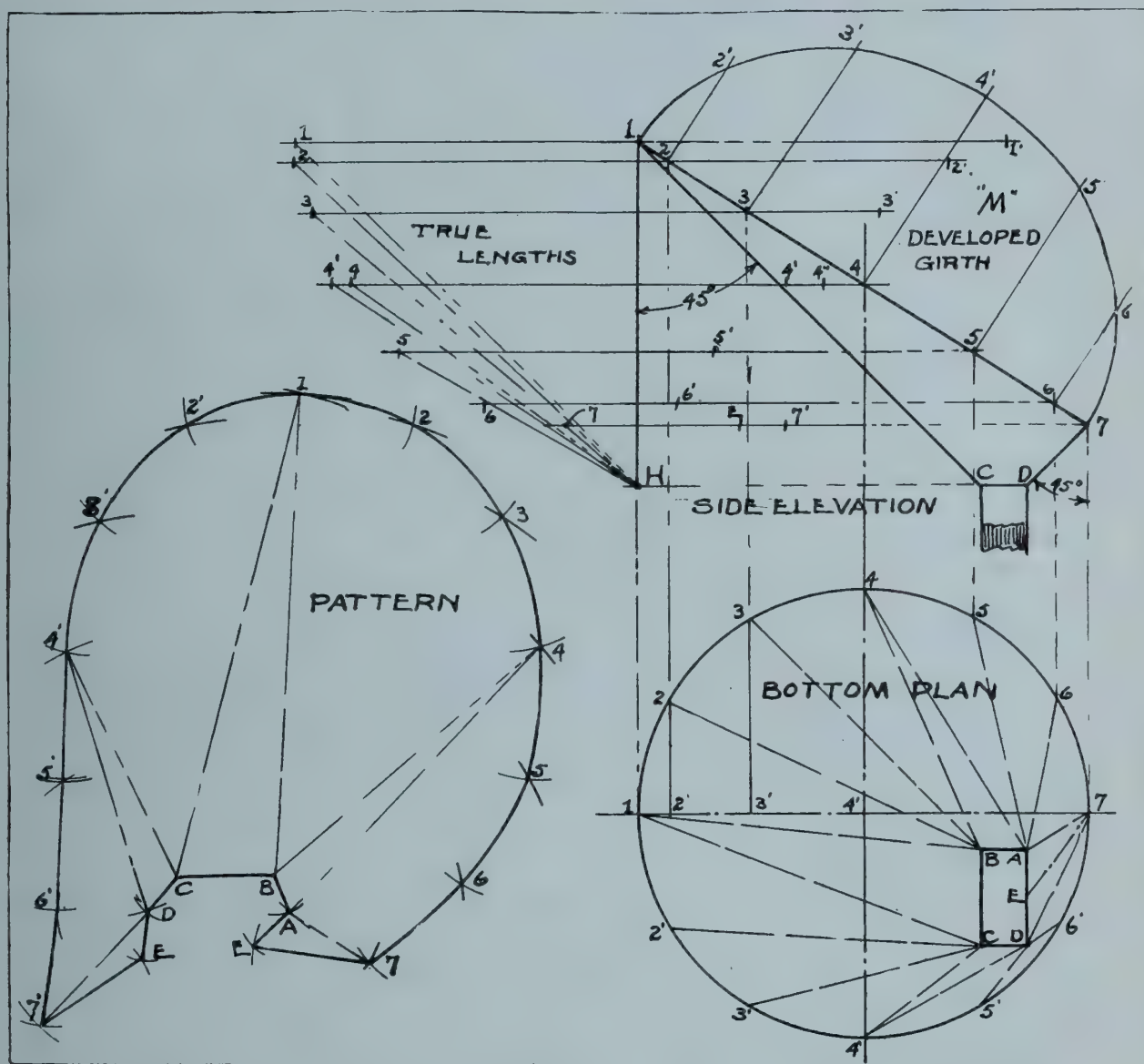
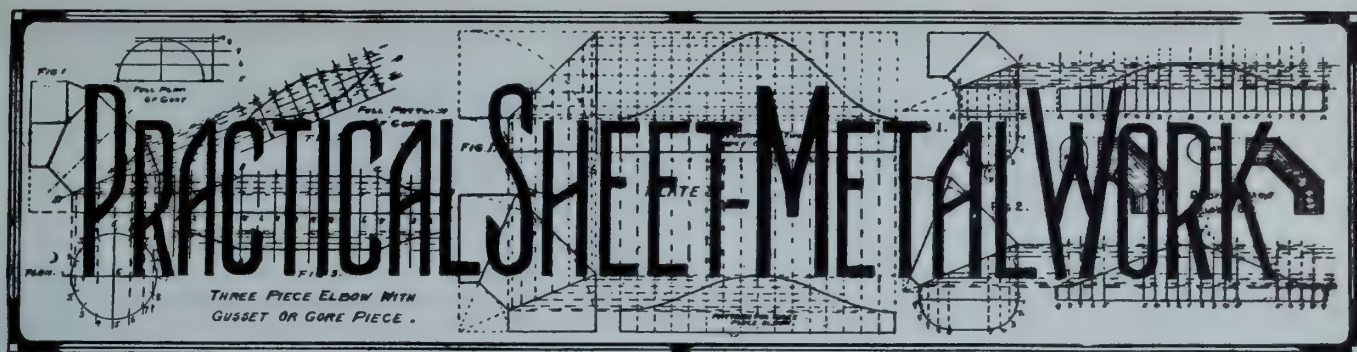
A good window display creates desire for your goods at the most opportune moments—ten chances to one the prospect seeing it is already out to buy.

UNWARRANTED ABUSE OF TINSMITHS

(Continued from page 13)

cent. if I do not take out a license. Is it compulsory to take out a license? Also is it compulsory for me to collect two per cent. sales tax on goods I manufacture when I have already paid a tax to the wholesaler on the materials used in these goods? I have one shop at — and a branch in another town. Is it necessary for me to take out two licenses?

The first part of this inquiry brings up the question of the liability of the tinsmith for sales tax in connection with purchases. If the tinsmith is to be classed as a retailer rather than a manufacturer (and retailer is the category in which he is being classed pending the outcome of the test case), he has to pay a one per cent. tax on materials purchased direct from a wholesaler or two per cent. on purchases of materials direct from a manufacturer. In selling the product of this material he, as a retailer, would not collect any sales tax from the consumer. If the manufacturer's license is taken out by the tinsmith, it is true that he will only have to pay one per cent. on purchases of materials, but as a manufacturer he will have to collect a two per cent. tax on sales of the product of that material and make periodic return for that amount to the Government. Obviously, when the Government agrees to postpone classing tinsmiths as retailers pending the test case, the tinsmith will have less difficulty by classing himself as a retailer than as a manufacturer. Only one license is needed for the business, irrespective of the branches, providing such license is found to be necessary.



Patterns for a Sloping Inclined Hopper

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.

HERE is the layout of a plan for a sloping inclined hopper.

The first step is to draw the plan, setting the square axis lines and describing the circle to suit the size of cylinder, or 64 inches in diameter in this case. Next, set the rectangle base A-B-C-D to the position measurements direct.

After this treat the circle in equal spaces, and draw lines to the corner of rectangle as shown.

Then erect the elevation, making the line 1-C on a 45-degree angle to 1-H, and fill in the slant line 1-7 to whatever slope your measurements direct.

This is the only slant line we need, and is used to obtain the various alti-

tudinal points in connection with the true lengths.

So from each point in circle of plan erect a line into slope line 1-7 of elevation as 2-3-4-5-6. Then from each of these points square over horizontal lines past the vertical line H-1, which is the set line for the diagram of true lengths.

Continued on page 29

Importance of Rural Water Systems

More Efficiency on Farms is Big Argument for Installation of Water Supply Systems—How Some Farmers Are Taking Advantage of Such Systems—Suggestions For Window Displays to Help Sell These Systems

THERE are perhaps more and stronger arguments to-day for the introduction of water supply systems in the rural districts of Canada than at any time in the past. The sanitary engineer may answer, "But my farmer prospects have not as much money to spend on such conveniences to-day as during the recent boom years." True this may be the case, but it is doubtful if a good sized bank roll is as instrumental in encouraging the farmer to spend money on a water supply system as a good sound argument, such as is advanced by present conditions.

In every branch of industry business relations are taking on a new aspect. The prosperous years preceding 1920 enabled many persons to ease up and the result was a loss of efficiency. To-day this inefficiency must be eliminated and advantage taken of every opportunity for economy of effort. This fact must be brought home to the farmer, and while many agencies are at work to do this the sanitary engineer may well lend his effort to the cause.

Figure Your Prospects

It should not be a difficult matter for the plumber to visit his farmer prospects and have it figured out definitely how much greater efficiency the farmer can have by the use of a water system. In between seeding and harvest is the best time in the summer to approach the farmer along such lines, and there is good time now to figure it out with special regard for the particular cases which must be dealt with. One important thing to keep in mind is the fact that installations of water systems themselves provide the best advertisement for the principle and the cumulative effect of introducing water systems into each locality will, in a few years, be very great.

All sorts of means have been applied in putting water under pressure in such systems, and a review of some of these older installations indicates that the idea is by no means new. True, there has been a remarkable development in the systems in recent years and these improvements combined with an old-established principle should provide sound argument for their use by farmers.

There are a number of installations in Ontario where the farmer has put the system in good use. These may provide the plumber with some ideas to advance when discussing the matter with his prospects.

Develops Water Power, Too

One Ontario farmer adopted a system of drawing water from a small stream passing in front of his house. Water was forced into the house and the barn.

By diverting part of the stream and securing a head of 12 feet, water power was developed from a turbine wheel providing power sufficient to crush grain, run a cutting-box, emery wheel, cream separator, etc.

Another farmer who secured his water by gravitation has put it under pressure in houses and outbuildings and all sanitary conveniences are provided. In this case the water supplied to the barn, drawn through a small pipe, furnishes sufficient power to run a saw for cutting wood, a cutting-box, a carrier that is used in elevating sheaves at harvest, a grain-crusher, pulper, fanning mill, etc. The pipe supplying the house, beside serving for domestic purposes, provides power for operating a washing machine, churn, etc., and even furnishing energy for a small electric lighting plant to illuminate the house. Fifteen lights of 20 candle-power can be used at one time.

Combination Pump

Still another farmer sank a well for hard water 25 feet deep about 30 feet from the house and constructed a cistern at one corner of the house. A combination pump was set up inside the house to draw water both from well and cistern. Valves in the pipe make it possible to shut off the soft water when hard water is pumped. There is a tank in the attic and once a week this is filled with soft water by pumping and the water then flows downward as required to bath tub and wash bowl. The hot water tank is located in the bathroom and keeps this room warm even in zero weather. By using soft water there is

no danger of the heater in the stove front becoming crusted with lime. The hard water is used only for drinking and cooking. The town water supply is drawn on for flushing the closet.

Using the Windows

There are any number of ideas to be worked out to increase the convenience of the rural home by the installation of a water supply system. Each plumber can figure these out for his own community and make a drive for such business. In connection with such selling effort the store windows should be used. A window illustration can be prepared by the use of illustrated matter supplied by manufacturers. Catalogues and other booklets will provide illustrations of plumbing fixtures and water systems and these can be pasted on a board. This illustration might show a range in the kitchen, water system pumps, etc., shown in the basement. A water trough with toy animals can also be shown. A light platform might be erected showing the basement of the house between the floor of the window and the platform, the upper floors of the house being above the platform. With a little paint and brush work a pipe line can be shown from the cistern to the water system in the basement and the sewage line from the house to the sewage disposal tank.

Under the heading, "Running Water on the Farm," a number of faucets might be shown at the top of the display with a ribbon drawn to the various water outlets in the house or barn. In the window might be shown a farm water system and other accessories.

An Apprentice to Three Journeymen

Plan Favored by Master Plumbers For the United States—Recommendation to be Made to General Convention

ONE apprentice to every three journeymen in the trade in the United States. This is the proportion favored by the Tennessee Association of Sanitary Engineers at its annual convention in Knoxville and which will be recommended to the national convention to be held in New Orleans in June.

It was proposed by Frank Herbrick, of Nashville, former president of the state association, who announced that at a meeting of master and journeymen plumbers at Indianapolis there had been a proposition for one apprentice to every five journeymen. Later he said there had been a proposal of one apprentice to each three journeymen, the matter be-

ing referred to the national organization, but no action taken. "Apprentices can be sent out to trivial jobs and do them as well as journeymen," he declared.

Mr. Herbrick asked those present to hold up their hands if any of them had apprentices now in their employ. No hands were held up. One delegate said he had three apprentices in his establishment when he left home, but that he did not expect to have them when he returned.

Delegates also went on record unanimously as favoring the "open shop" or American plan of employment. The national association had favored the plan and W. V. Kennedy, of Nashville, the retiring president, urged it.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May be Referred to and Studied

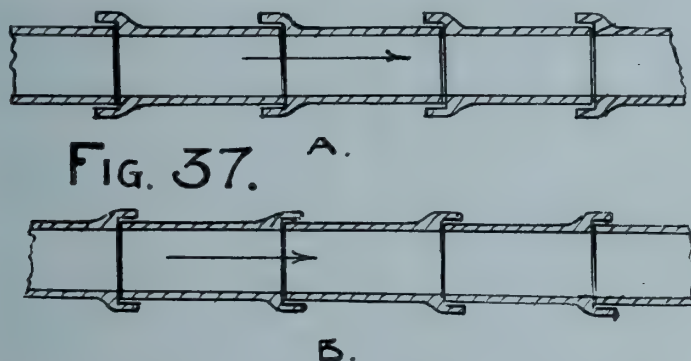
Article No. 30 of the Series—Illustration No. 37-40

(Continued from March 1 issue)

FIG. 40 shows a plan and section of a small screening chamber which will meet the requirements for small installations. The chief point to be borne in mind is not to decrease the velocity so that the solid matters in

the filtration area for final purification. This chamber can be connected by a pipe and valve connection to the by-pass but if the tank is well connected there is no necessity for this chamber connection.

channel irons built in the concrete wall. It is a good practice to connect the outlet end of the sedimentation tank with



suspension will be deposited, turning same into a miniature settling tank. Only the heavy indestructible mineral matter should be retained in this chamber and the screens should be always kept clear so as to not interfere with the flow.

The illustration shows a small chamber, 10 feet by 2 feet 9 inches, constructed in concrete below the ground level with a catchpit and cast iron screen set at an angle of 45 degrees with $\frac{3}{4}$ -inch bar spacing. The tank is covered with a movable stone slab for cleaning purposes or can be constructed in concrete with an inspection manhole as required. A valve should be placed on the outgoing pipe to tank so that the works can be closed down and sewage diverted by means of by-pass having its outlet behind the screen, as shown in the drawings.

The outlet overflow empties into a small dosing chamber connected for economical reasons direct to the Imhoff tank. An automatic syphon is installed in this chamber, which discharges the clarified tank effluent periodically on to

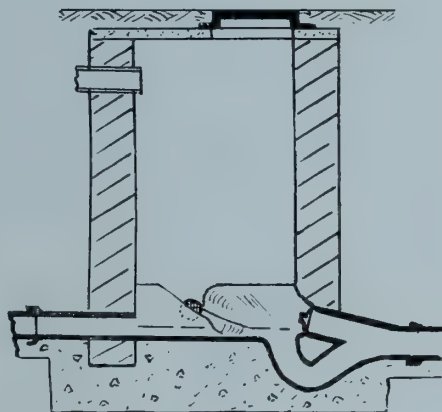


Fig. 38

The concrete forms should all be matched and dressed lumber and the finished surface should be left smooth and watertight. For safety purposes, owing to the depth of the tank, same should be enclosed by means of a cheap railing constructed with $1\frac{1}{4}$ -inch gas pipe tubing. Wooden baffle boards should be placed at the inlet and outlet of the sedimentation tank, let into 3-inch

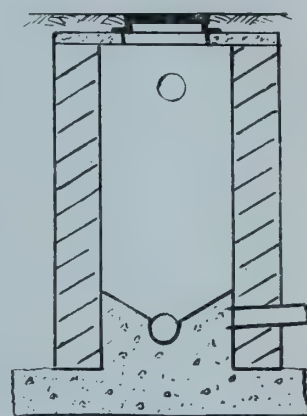


Fig. 39.

the by-pass by means of a pipe and valve connection so that at any time the clarified tank effluent can be passed direct into the stream should the filtration area be out of commission.

The writer believes in making this connection wherever possible on the vertical sludge pipe at the quarter bend by continuing the horizontal pipe through the sludge apron. By this means you not only provide an outlet, but it enables you to flush the sludge pipe after each discharge.

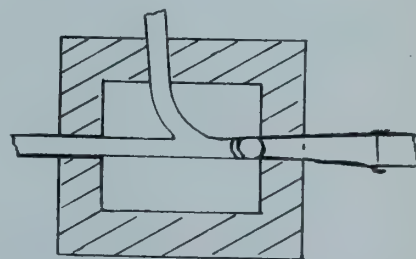


Fig. 40.

Heating and Ventilating

Combination Heating Systems

Written for Sanitary Engineer by N. A. KEARNS

(Continued from last issue)

In all cases, the radiation in the rooms which are some distance from the furnace should be figured for the full heat loss. The radiators which are set fairly close to the furnace may be reduced in area in proportion to the effective areas of the warm-air pipes serving heat to such rooms. In making the reduction, it is well to consider that one square inch of effective leader area is equivalent in heating effect to about one square foot of direct hot-water radiating surface.

The efficiency of direct hot-water radiators, of the cast iron type, may be considered as being 155 B.T.U. per square foot per hour.

The feed pipe connection to a radiator may be made at the top or bottom; but in all cases the return connection must be fitted to the bottom of the radiator.

When a supply connection is made to the top of the radiator, the circulation in that radiator will be downward in every loop or section. When the feed connection is made at the bottom of the radiator, the circulation will be upwards in the first loop and downward in all of the others, or an upward and downward circulation may take place in the same loop or section.

Hot Water Circulation.

The force which causes the hot water in a gravity system to flow comes from the difference in pressure between the water contained within the flow and return circuits. The water in the return pipes, being colder and heavier than the water contained within the feed pipes, exerts a continual pressure against the base of the column of warmer water. It is the effort of nature to equalize the pressure in the two columns which causes the water to circulate.

This motive force, especially in an open tank system, is not very great, so the careful fitter always arranges the piping, etc., so that they will offer the least possible obstruction to the free circulation of water.

Combination heating plants are usually piped for the "open tank" or "low pressure" system. In a system of this kind the water temperature never exceeds 212 degrees.

In designing a hot-water system of gravity circulation, the object of the engineer is to equalize the resistance in every branch, so that the water will flow at an equal rate through all parts of the apparatus. The equalization is accomplished by making the diameter of each pipe proportionate to the driving force at each particular point. If a pipe connecting a radiator which lies close to the boiler should by mistake be made too large, it is likely that the circulation of water through that radiator might be rapid enough to check the return of water from a radiator set in some less favored position.

The system of piping favored for small installation is that known as the "two-pipe" or "parallel system." In this system the main supply pipes are connected to the feed headerappings of the combination boiler. The mains run close to the basement ceiling and are pitched upwards toward the radiators. Branches to radiators are taken out of the top, side, or bottom of the main feed, as the circumstances of the design may warrant. The return mains are run parallel with the feed mains, the branches from radiator returns being connected in the same manner as for the feeds. The return main drops down to, and is connected with the return headerappings of the combination boiler.

In installing this, or, in fact, any system of piping, care must be taken to see that no pockets are formed where air may gather and obstruct the circulation of water. Where air is likely to accumulate the apparatus must be vented.

When a horizontal main is reduced in size, the fitting taken off it must be out of the top. A fitting set thus will allow the escape of air which might otherwise prevent circulation farther on in the main.

When it is necessary to reduce a main after a fitting has been taken off from the bottom, the reduction should be made by means of an eccentric coupling turned so that there will be no downward break in the uniform upward grade of the main.

The Inverted Circuit

This system of piping is also known

by the name of the "equalized system."

In the equalized system the piping is so arranged that the water is compelled to travel the same distance in going to and in returning from any radiator on the same floor. In this way no radiator has any advantage over any other. The piping is installed so that the first radiator fed from the supply main is the radiator that is the last to have its water returned from the boiler.

Expansion Tanks.

The purpose of the expansion tanks is to provide a chamber in which the water may expand as it becomes heated.

In combination systems the open tank is generally used.

In open tank systems the expansion of water will take place without any change of pressure throughout the system.

The closed tank is not very often used in connection with combination systems. The sealed tank is not entirely safe, and when it must be used it should always be fitted with a reliable safety valve.

The size of the open tank required for a hot-water system may be estimated by allowing for a tank capacity of about 5 per cent. of the water contained in the entire apparatus.

Expansion tanks should be set where they will be in full view. They should be protected from frost, and set well above the highest point of the circulating system.

The pipe connecting the tank and heater must be free of any valves or checks which might cut off communication between the tank and boiler.

The surface of the water must be open to the atmosphere by way of a vent pipe. The overflow should be brought down through the building by means of a pipe, discharging where it may be easily seen.

(Continued in next issue)

NEW SANITARY SYSTEM

Newmarket.—At a meeting of the High School Board plans for a complete new sanitary system, submitted by O. E. Tench were approved. The new system, which is of the very latest design, will cost \$4,000.

THE QUESTION BOX

Plans for Public Comfort Station

Question.—We have been asked by a member of the Women's Council to procure some information regarding public comfort stations. We remember some time ago seeing articles in Sanitary Engineer on that subject. Evans & Chisholm, New Glasgow, N.S.

Answer.—Probably the best pointers on comfort stations can be gleaned from a review of the installations in a certain city. Winnipeg has gone fully into the matter and in the following report on the systems in that city you will find much valuable information:

There are several unique features about the comfort stations of Winnipeg. In the first place they are sweat proof, being a shell within a shell, the outer shell being of concrete and the inner shell of baked enamelled steel. You will also see by examining the plan that the pipe chambers behind the fixtures are very roomy, and the floor of the pipe chamber is about 18 inches lower than floor of lavatory, so that all the piping is exposed to view, even the drains. In this country where so much trouble is experienced with frost at soil pipe terminals, it would have been impossible to protect a stack running through a superstructure such as is shown here without grave danger of it becoming continually blocked with frost, so we did not run a stack at all but carried the 4-inch vent pipe through wall of comfort station and turned it into a manhole specially built alongside station. In this way there is no possibility of trouble from frost, and the manhole can be constantly kept under observation. The ventilation is very complete for buildings of this nature heated by electricity, although the buildings are so designed that they can also be heated by steam, gas or hot air if thought advisable.

These are the first comfort stations built in Winnipeg under the direct control of the city officials. They are plain, serviceable and permanent structures, and were designed to give the best and greatest accommodation at a minimum cost.

The accompanying table shows the accommodation and capital cost of stations constructed in recent years, also the cost per fixture. It will be seen that most recently constructed stations cost much less per fixture than those built in 1914-15 in spite of the fact that material had increased considerably in that time.

SPECIFICATIONS FOR PLUMBING AND VENTILATING OF COMFORT STATIONS

Plumbing

These specifications and drawings are intended to cover the installation of a complete system of plumbing, including plumbing fixtures and their fittings. The contractor shall guarantee to keep in repair all work done by him for one year except where damage is done through misuse or frost. All work must be executed in a proper manner, and to the satisfaction of the plumbing inspector of the city of Winnipeg, or his assistant,

galvanized W. I. piping as shown on plan, and main 4-inch vent to be extended with C. I. piping through wall of building into manhole at a point not more than 5 feet above the floor of the comfort station. All vents to be properly graded.

Floor drains in ladies' lavatory to be formed of 4-inch pipe with bends turned up and fitted with 8-inch frame and brass cover.

Rain Water Leaders

Construct two 2-inch rain water leaders of C.I. piping discharging into catch basin.

Location—	W.C.'s	Urinals	Basins	Drinking Fountains	Total	Grand Total	Capital Cost	Cost per Fixture
Fort St. (male), built 1914-15...	6	12	2	1	21			
Garry St. (female), built 1914-15.	7	..	2	1	10	31	\$25,777.35	\$812.17
Logan & Main (male)	6	8	2	1				
Logan & Main (female)	6	..	2	1				
Built 1916-17.								
Selkirk & Main (male)	6	8	2	1				
Selkirk & Main (female)	6	..	2	1	26	52	\$27,102.15	\$521.19
Built 1916-17.								

and in addition shall be carried out in accordance with the accompanying plans and specifications and the city by-laws governing such work. The contractor shall make allowance in his tender for all permit fees including sewer and plumbing permits.

Sewer Connections

Construct a 6-inch sewer connection from main sewer on street to a point 8 feet outside wall of building.

Drains

Construct and connect 4-inch C. I. drain from sewer connection into and throughout building as shown on plan, with all necessary connections, with clean-outs and floor drains where necessary and having a 4-inch hub valve on the drain immediately it passes into the building, said valve to be built into a waterproof valve chamber 2 feet in diameter constructed of concrete, the gate valve to have brass trimmings and wedge gate, valve spindle to be fitted with wheel and spindle extended so that wheel is not less than 3 inches below floor.

Vents

Vent pipes are to be constructed of

Construct 2-inch wastes with trap from drinking fountain to catch basin.

Water

Construct and lay a 4-inch C. I. water supply pipe from water main on street into building, and run two 2-inch branches to each lavatory taking off 1½-inch connections to each.

W.C. Each branch to be fitted with standard brass gate valve. Also run ½-inch connections to each urinal tank and hot and cold supplies to basins, said connections to be fitted with ½-inch compression cocks. All valves and stop cocks to be placed in pipe chamber behind fixtures, all exposed supply pipes and fittings to be heavy N.P. Brass Supply and fix 1 N.P. hose bib cock and extension, position to be located by the architect. Supply and fix 40-gallon hot water tank complete with W.I. stand and fittings in fan room. The tank is to be fitted with an electric water heater of the Westinghouse type.

Water Closets

Supply and fit up twelve water closets of the acme syphon jet centripetal action pattern (plate G. 1885) G. Jas. Robertson Co.'s catalog fitted with concealed

Kenny flushometers, pull-button pattern with recessed face plate, and oak seats heavily reinforced all round with N.P. brass flange with Crown bumpers inserted all around side of seat.

Water closet bowls to be connected with C.I. bends with heavy brass floor flanges caulked in.

Urinals

Supply and fit up complete eight (8) class "B" craftsman interlocking ideal porcelain urinals (plate 3583N). Trenton Potteries Co.'s catalogue with integral seam covers, twenty-four (24) inches wide and forty-eight (48) inches high, to be fitted with two eight-gallon vitreous china automatic flush tanks to be placed in pipe chamber and supplies brought through partitions. Each urinal to be trapped separately by a 3-inch C.I. trap in pipe chamber with full size clean-outs as shown on plan. Outlets from each urinal to be fitted with rose strainer.

Wash Basins

Supply and fit up two wash basins 24 inches by 21 inches complete as shown on plate 2563 N. Catalog Trenton Potteries Co., fitted with self closing cocks and supported by wall brackets and leg to floor.

Drinking Fountain

Supply and fit up two drinking fountains complete as shown in plate 6549 Standard Sanitary Catalog, fitted with push button head and loose key stop on supply fountain. Standard to be painted with three coats of white enamel paint.

Soap Dishes, Toilet Paper and Towel Holders

To be supplied and fixed to the entire satisfaction of the plumbing inspector or his assistant.

Ventilating System

The contractor is to instal a complete system of ventilation with motors, ducts, cut-out switch, meter brackets, etc. The fresh air supply fan will have a capacity for delivery of 1,150 cubic feet of air per minute, and the foul air fan 862 cubic feet of air per minute. Both fans will require not more than 45 h.p.

Fresh Air Supply

Fresh air supply is taken from intake flue of an area of 200 square inches and is connected to a flue where shown on plans, of an area of 144 square inches and discharged into male and female apartments through 10-inch by 16-inch registers; these registers are located in the ceiling.

Foul Air System

Foul air system consists mainly of 4-inch connections at each closet connecting to 6-inch by 6-inch registers located approximately 12 inches from the floor and connected to a duct with an area of 80 square inches.

Fan

Fan consists of two (2) multivane type exhaust fans, with wheels overhung

on extended shaft of Sturtevant type "B" direct current motor. Motor to be supported on steel plate box (or C.I.) attached to fan housing, making a rigid compact unit.

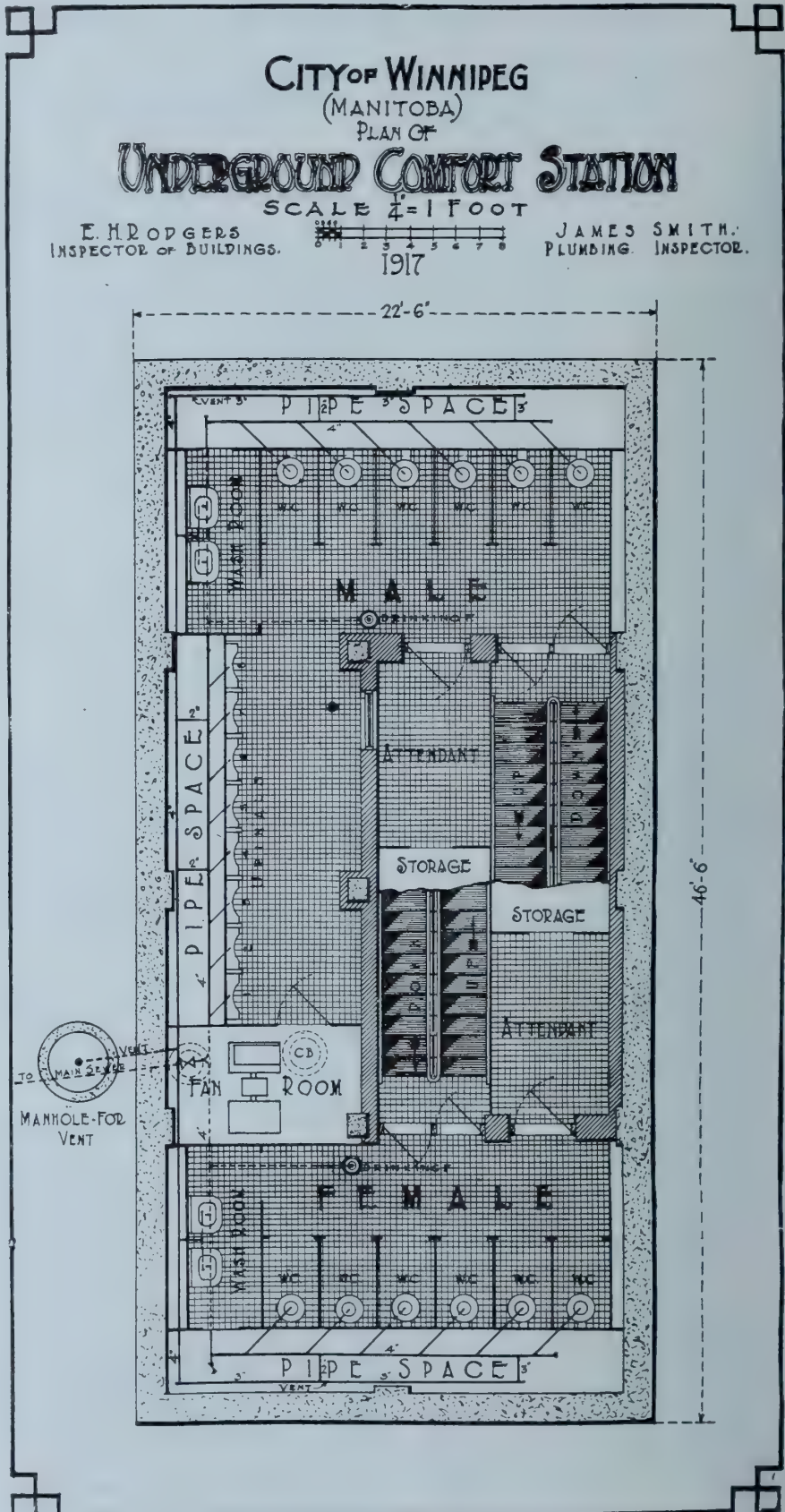
Ducts

Ducts to be made of 22 gauge iron (galv.) with lap and soldered joints and

where exposed in lavatory to be enamelled white with three coats of enamel.

Registers

Registers to be all nickel-plated with hit and miss closures. Intake and exhaust to have copper mesh 1 inch square and all to be constructed to detail.



Facts About Warm Air Installations

Faulty Installations Have Put Warm Air Furnaces in Bad Repute
—Some of the Chief Imperfections in Installation—Size of Registers Needed for Various Sizes of Furnace Pipes

"IT was not until about the 19th century that we find the present system of heat transmission through the agency of steam, water or air to come into general use. During the past fifty years the art of heat transmission has been raised to the dignity of a science," said a speaker before a recent convention of the Sheet Metal Contractors' Association of Illinois.

"Eminent heating engineers, such as Carpenter, Snow, Kidder, Fuller and others, have published technical books on the subject, which enable the scholar of to-day to master the science and produce economical results that were not thought of in past ages.

"Some of you may know of the research work now being done by Professor Willard and his staff of assistants at the University of Illinois. They are engaged in a scientific test of furnaces and all the appurtenances thereto.

"This work was made possible through the financial aid and co-operation of the National Warm Air Heating and Ventilating Association—an organization that has for its object improvements in furnace construction, installation, legislation and any of the things that make for betterment of the industry.

"I think many of you will agree with me when I say that much of the present installation of furnaces has been done without regard to the science that the work required, neither has the fire hazard been given the necessary consideration.

"Faulty installation of furnaces has put the art in such bad repute, that it is not uncommon to hear the public say that a warm air furnace is not a satisfactory method of heating a building, frequently proving their statements by referring to some of their acquaintances who are using a furnace with unsatisfactory results.

"The entire question of an imperfect warm air heating system is not a result of imperfect furnace design, because I do not believe there is a furnace made that will not do the work if properly installed. Unsatisfactory results are always traceable to imperfect casings, fittings or installation in general.

Proper Installation Eliminates Trouble

"Proper installation will entirely eliminate the complaint where one or more warm air pipes fail to deliver any warm air. This condition, when it occurs, causes the installer much trouble and expense to remedy.

"It means a number of trips back to the job, possibly installing a trap, to force heat into the obstinate pipe, or, in

some cases, removing the pipe and replacing with one of larger capacity, all of which often ends in failure, causing a dissatisfied customer or the removal of the entire apparatus.

"My own observations in checking over a great many installations leads me to the conclusion that most jobs were put in, based on guess work only. I could not find that any rule for estimating pipe or furnace sizes was used.

"I frequently find furnaces, warm air pipes and cold air supply undersized, in fact the entire installation so far out of balance that the only remedy would be a complete removal of all the work and a new furnace and fittings substituted.

"There are absolute fundamental laws governing the installation of furnaces, which if followed will avoid failure entirely. I realize that many of us engaged in furnace installation have not had an academic education, and, therefore, all the technical books published are of no value to us.

"It certainly is an accomplishment to be able to figure the pounds of air to be circulated per hour; furnace rating based on the rate of combustion expressed in British thermal heat units; the volume of air in ventilating shafts; mechanical fan blast system of heating; and other technical problems that confront the furnace installer.

Follow Law of Air Velocities

"Although we may not be able to use these factors, we can nevertheless do a scientific installation of furnaces, by following the law of air velocities, namely: dealing with the volume of air flow through the casing, which after all is the important factor on which we must found our work.

"We can afford to leave the question of radiation and convection of heat to the maker of the furnace. We also have a right to expect that the furnace is so designed that it will heat the air flow within the casing. Therefore, the installer can confine his problem to a proper distribution of the available heated air.

"It is essential that you should know the exact air supply in the casing. This can be ascertained by measuring the area of the casing and deducting from this area the obstruction of the furnace inside the casing. This will give you the free air available for distribution.

"I have seen jobs that had leader pipes whose combined area was far greater than the free air area within the casing, consequently some of the

pipes were 'starved,' since those of least friction would take all the heat, leaving others to act as cold air returns instead of warm air supply ducts.

"It is impossible to take out more air than the furnace supplies. If inlet, outlet and free air area in the casing are balanced, there can be no chance of all leader pipes not getting a full flow of air, and if of proper size will heat the room for which it is intended.

"As a general rule we find that in ordinary cellars we cannot get more elevation to the leader pipes than about one inch to a foot. This elevation gives us a velocity of 100 feet per minute, which is slow, and requires the use of large leader pipes. There are a number of rules based on this velocity that the furnace installer may use to compute the area of the leader pipes required. These rules are simple and do not require an education beyond the ability to add and multiply figures.

Building Capacity Figures Unreliable

"I find that many furnace installers work on the basis of cubic foot capacity of the building to be heated, and then accept the cubic foot heating capacity of the furnace as rated in manufacturers' catalogues.

"This is a very unreliable method, since exposed wall surface and glass surface are vital factors which must be taken into consideration. Moreover: the cubic foot rating of many furnaces is open to question. Some reliance might be placed on this rule if not more than 324 cubic feet of space is estimated for each square foot of radiating surface of the furnace.

"Again: The free air area in the casing is frequently found out of balance with the heater. In view of this condition, I would recommend that the furnace installer measure up the furnace he is selling and determine for himself the actual volume of air in the casing; then use up to 90 per cent. of this volume for distribution, leaving about 1-10th of the area for loss by friction. This will make you safe on any job.

"One of the most common errors made by the furnace installer is the use of registers of insufficient capacity. It seems to be customary to use the smallest register possible to serve as a warm air pipe.

"Frequently a 12x14 floor register will be found serving a 12-inch pipe. The pipeless furnaces being sold to farm homes. The sale in this direction has an area of 113 inches, showing a short-

Continued on page 36

Sanitary Engineer

Plumber and Steamfitter of Canada

CASE OF TINSMITHS

A GREAT deal of confusion has been caused in connection with the application of taxes to the product of tinsmith shops owing to the fact that the exact status of this trade has been indefinite. In a recent issue of *SANITARY ENGINEER* a statement was published from the Assistant Deputy Minister of Customs and Inland Revenue to the effect that pending the test case being instituted against a tailoring firm in Ottawa to establish whether a retailer could be classed as a manufacturer, tinsmiths and certain other trades would not be responsible for taking out manufacturers' licenses and collecting 2 per cent. sales tax from their customers. Despite this assurance a number of letters have been received from tinsmiths during the past week stating that Inland Revenue officers have been overbearing in their dealings with tinsmiths and pay no attention to the above ruling, stating that tinsmiths are not affected by what the tailors' case establishes.

In order to clear up misunderstanding and give tinsmiths something to work on, a definite statement from a high official of the Department of Inland Revenue appears in this issue confirming the previous statement. With this assurance these merchants can refrain from taking out or renewing manufacturers' licenses and from collecting any sales tax whatever on their sales. This must not be confused with the sales tax they pay on materials purchased from wholesalers or manufacturers. If a tinsmith classes himself as a retailer he pays 1 per cent. on materials bought from wholesalers and 2 per cent. on materials bought from manufacturers. He has no part in making returns for this tax, however. This statement should clear up any difficulty and the result of the test case will be made known in *SANITARY ENGINEER* in a short time. It is due for consideration early next month.

ADEQUATE PLUMBING AND DRAINAGE

THE close of the present century witnessed a most remarkable development in the construction of plumbing and house drainage. Heretofore, many earnest, well-meaning individuals, not appreciating the importance of correct plumbing and drainage, were inclined to sacrifice these vital factors in their buildings to the adornment of their reception, dining and other rooms, not realizing that the very decorative work on which so much time was spent might conceal a hidden enemy in the disguise of deadly sewer gas.

The presence of drain diseases, such as typhoid and scarlet fevers, dysentery, etc., coming frequently from no apparent cause, led the inquiring minds of the master plumbers to investigate, and as a result of their investigation is attributed much of the improvements now noticed in modern edifices, this same work which was heretofore done for the embellishment of the more fav-

ored portion of dwellings is now applied to bath and toilet rooms and their accompanying house drain accessories, and knowledge and refinement have superseded ignorance and neglect. While all these are laudable steps in the right direction, still it must be borne in mind that attractive fixtures may be attached to defective drains and a dangerous state of infection may exist among daintiest surroundings. House drains and their accessories convey from the house the liquids and solid refuse which animal life ejects. Waste is a necessary accompaniment in all conditions of life. The accumulated waste from daily existence of life which naturally becomes offensive must be removed or disease will ensue. The drains therefore which encircle the abode and other structures and convey the matter from dwellings must be absolutely perfect; even the slightest imperfections create a chronic state of ill health and oftentimes death. Therefore, every owner of property, architect and plumber should weigh these facts well. They should familiarize themselves with plumbing and drainage systems of the structure and adopt only that which is trustworthy in every respect.

PROBLEMS OF APPRENTICESHIP

IT is encouraging to note that master plumbers are addressing themselves seriously to the problem of apprenticeship. The shortage of apprentices in the plumbing trade will bring about a serious situation if it is not remedied in time. Few journeymen are coming from the Old Country and Canadian youths have shown a disinclination to become plumbers under existing conditions. If the heralded revival of building were to set in the country would soon be confronted by a labor shortage and construction would again be held up with injury to many industrial interests and to business generally.

While conditions are such as now prevail, there is little encouragement to go ahead with plans for drawing apprentices to the plumbing industry, but now is the time to make preparation for the more active period which is bound to come. In his report on the apprenticeship question to the recent convention of the Ontario Society, D.S. and H.E., George Clapperton drew attention to the splendid results obtained from the classes of instruction provided at the technical school in Toronto. This educational work should be extended. Frequently, enquiries have come to *SANITARY ENGINEER* from various parts of the country asking for the names of master plumbers who will take apprentices and who will make provision for their education. This condition indicates the necessity for an extension of educational training to the coming generation of plumbers.

In this connection it is interesting to note that the National Joint Conference Board of the building trades industry has outlined an apprenticeship plan to be submitted to employers' associations and trades unions. The details are technical and require close examination, but on the whole the object of the recommendations is commendable. Methods of recruiting the plumbing industry can be found if ideas are forthcoming from all branches and the result will be to place the trade on a sounder basis for future development.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Hamilton, Ont.—J. H. Stewart & Son, plumbers, have dissolved. C. J. Stewart continues.

DISCONTINUES BUSINESS

Annapolis Royal, N.S.—R. T. Harris, plumber, has discontinued business.

NEW FIRMS

Westmount, Quebec.—Wheatley & Capelin have commenced the plumbing and heating business at 239 Victoria Ave.

PERSONAL

F. M. Wilkes, sales manager of Cluff Bros., Ltd., Church St., Toronto, has been ill for the past two weeks and absent from his office.

OBITUARY

One of the "old school" in the plumbing and steamfitting trades has passed away in Montreal in the person of Richard Egan. Mr. Egan was 72 years of age and was connected with the plumbing and heating trade for 45 years, serving his time with John Date, plumbing contractors, who still carry on business in the city, and became foreman with the above concern at the age of 30 years.

Many head members of plumbing and steamfitting firms at present in Montreal started their trade with the deceased. Mr. Egan was a charter member of the Montreal Master Plumbers' Association.

Montreal.—David Hickey, Hickey & Aubut, plumbers, is dead.

ADDITION TO PLUMBING SUPPLIES WAREHOUSE

Sherbrooke, Que.—Construction has commenced on the new five storey building which is being erected for A. R. Wilson, plumbers' and steamfitters' supplies. Mr. Wilson will carry a very complete line and will devote two floors to show room accommodation.

CONVENTION OF CANADIAN SOCIETY, D. S. & H. E.

The annual convention of the Canadian Society, Domestic Sanitary and Heating Engineers, will be held in the city of Quebec on June 6, 7 and 8. The complete programme and other details regarding the convention will be outlined in Sanitary Engineer well in advance of the dates mentioned.

RIDICULES RESOLUTION OF MONTREAL PLUMBERS

Ottawa.—Tom Moore, president of the Trades and Labor Congress of Canada, ridiculed the resolution submitted by the Montreal plumbers against the exportation of coal to England during the present strike. He stated that the fact that the Montreal Trades and Labor Council took no action when the resolution was submitted was sufficient proof as to how it was generally considered. He added that the American Federation of Labor could not induce any labor organization to take any action, as the labor organizations had complete autonomy.

MASTER PLUMBERS IN NEW QUARTERS

Montreal.—The offices of the Master Plumbers' Association are being moved to temporary quarters, 10 Belmont Street, next week.

These temporary offices have been leased for one year, while the future quarters of the Builders' Exchange (Master Plumbers included) are being completed. In the new building the whole of one floor will be occupied by the Builders' Exchange for offices of the secretary, board of directors, committee rooms and general meeting rooms. About 3,000 square feet will be allocated against 900 square feet in their present location. The remainder of this floor will be taken up by reading rooms, billiard rooms, etc.

WATERWORKS SYSTEM FOR PORT CREDIT

Port Credit.—"That owing to the report of the Provincial Board of Health, relative to the condition in the water supply of Port Credit, be it resolved that our solicitor be instructed to prepare a by-law for \$55,000 to be submitted to the people for the supply works of a waterworks system. Also to prepare the necessary by-laws and notices for installing the distribution system under clause 13 of the Local Improvement Act."

With very little discussion the council passed this resolution, setting in motion the work of getting a waterworks system for the village. Engineer Proctor was instructed to prepare the necessary plans for the approval of the Provincial Board of Health.

WESTERN ONTARIO NOTES

Roy Wilson, Waterford, Ont., wants prices on heating in connection with new school to be erected at S. S. No. 6, Townsend Tp.

* * *

Plans are to be prepared for a new technical school to cost \$300,000 at Windsor, Ont. H. J. Neal, chairman of the Board of Education.

* * *

H. Garley, 164 Adelaide St., London, Ont., wants price on hot air heating, plumbing and electrical work for new \$5,000 dwelling.

* * *

H. Wolf, 491 King St., London, has commenced excavating for two new residences to cost \$12,000 and wants prices on hot air heating, plumbing and electrical work.

* * *

The Webster Construction Co., of London, Ont., has been awarded contract for laying new sanitary sewers in the town of Simcoe.

* * *

Henry Radcliffe, 272 Regent St., London, Ont., wants prices on hot water heating, plumbing and electrical work for new residence to cost \$9,000.

* * *

Arthur Brown, Essex, Ont., is preparing plans for new \$5,000 bungalow and wants prices on heating, plumbing and electrical equipment.

* * *

Wilfrid Glenn, 69 Wilton Court Hotel, Toronto, is preparing plans for two dwellings to be erected on property he owns in London and wants prices on hot air heating, plumbing and electrical equipment.

* * *

John Moran, 967 Maitland St., London, has commenced excavating for new dwelling to cost \$4,500 and wants prices on heating, plumbing and electrical work.

* * *

The Patterson Engineering and Construction Co., Windsor, Ont., E. F. Patterson, manager, is preparing plans for 100 bungalows and is interested in prices of heating, plumbing and electrical equipment in quantity.

* * *

D. M. McGregor, Aylmer, Ont., will receive tenders until May 14 for erection and equipment of new school lavatory to include eight urinals and eight toilets. Estimated cost, \$9,000.

Are You Helping t

A syphon does not start of itself, as you know; you must first prime it or otherwise furnish the mechanical aid to raise the liquid up the short leg to the turning point.

After that the fluid runs smoothly, evenly, and continuously, with little more required than watchful care to prevent obstructions.

The principle of the syphon is perfectly familiar to every Sanitary Engineer. Let us apply this elementary principle of our own trade to present conditions of business.

In our advertisements we have pointed out the vast opportunities for plumbing enamelware sales in Canada. This business is not going to flow of its own accord; it requires effort—priming. Every one of us in the plumbing trade must co-operate to raise the flow of business up the



Port Hope Sanitary

Factory :
PORT HOPE, ONTARIO

Toronto Show Rooms :
119 KING ST. EAST

Win
405 T

Start the Syphon?

short leg of the syphon and over the turning point —nor can we stop there. Every plumbing manufacturer, distributor, and artisan, must work to keep the flow clear and prevent its interruption.

There must be fair and honest production with fair and just wages; there must be a square deal for every employee; there must be harmony and co-operative "team-work" that will keep the flow of business running through the great syphon of the plumbing business. Discords now, with prosperity near at hand, would be fatal.

Let there be no disputes and no internal dissensions. These would seriously interrupt the flow from Canada's great, and practically inexhaustible, pool of future business development.



g. Company, Limited

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Frank Folden, of Foldens P. O., Ont., is preparing plans for new \$5,000 residence and wants prices on hot air heating and plumbing.

* * *

F. D. Bainard and W. Glenn, of Glanworth, Ont., have been appointed a committee to secure plans for a new public library. Prices wanted on heating and electrical equipment.

* * *

Dennis Howe, sanitary and heating engineer at Ingersoll, Ont., will have the sympathy of a wide circle of friends in the trade in the death of his brother, Michael Howe.

* * *

Architect H. C. McBride, Molsons Bank Building, London, Ont., is preparing plans for alterations to the residence of Dr. Rogers, at Ingersoll, Ont., including new bathroom.

* * *

Prices are wanted immediately at London, Ont., on a centrifugal water pump, 3,000 gallons capacity per 24 hours, 65 foot head. E. V. Buchanan, general manager Utilities Commission.

* * *

Plans are to be prepared for new steam heating system in connection with St. Peter's cathedral. Mgr. McKeown, the Palace, London, Ont., will look after all arrangements.

* * *

Prices are wanted immediately on lead-covered cable and cast iron junction boxes by the Utilities Commissioners at London, Ont., who plan to put all electric wires in the downtown district underground. Estimated cost, \$50,000. Work will proceed during the summer.

* * *

A. L. Oatman, 412 King St., London, wants prices in connection with a steam heating system for large residence.

* * *

R. Martin, 76 Smith St., London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with new \$4,500 residence.

* * *

Bull Bros., 363 Hamilton Road, London, Ont., are building a new garage in connection with their plumbing shop.

* * *

O. L. Ferris, Harrow, Ont., wants prices on heating and plumbing for new \$5,000 bungalow on which work will commence immediately.

* * *

Sidney Jermyn, Granton, Ont., has commenced erection of \$5,000 bungalow and wants prices immediately on hot air heating, plumbing and electrical work.

* * *

Mayor Wigle, M. T. Murney, Chairman of the Water Commission, and Dr. A. C. Hunter, M.O.H., have been appointed a committee to arrange for the installation of a mechanically operated filtra-

tion system at Goderich, Ont. The matter is now being taken up with the Provincial Health Department and it is expected that the work will proceed in a few weeks.

* * *

The Water Commission at St. Marys, Ont., plans to proceed shortly with an extension of the water main on Queen Street and laying of water services. Estimated cost \$5,000. W. Cole, secretary. Prices wanted on materials.

* * *

R. B. Samuel, Kingsville, Ont., is preparing plans for new residence to cost \$4,000 and wants prices on heating and plumbing.

* * *

Louis Bloch, Owen Sound, Ont., wants prices on heating and plumbing for eight new residences he is planning to build on 2nd Avenue East.

* * *

B. H. Bloodsworth, Listowel, Ont., will receive tenders until April 30 for heating, plumbing and electrical work in connection with new \$8,000 rectory for the Anglican Church.

* * *

Fred Wright, Amherstburg, Ont., wants prices on heating, plumbing and electrical work in connection with new \$4,000 residence to be erected this spring.

* * *

The town of Hanover, Ont., plans to expend \$82,000 this summer on the in-

stallation of a filtration system and rebuilding the water tower which collapsed some time ago. The town has been advised by Dr. Wodehouse, district medical health officer, that provision must be made for sewers emptying into the river at a point below the proposed filter. Under present conditions the sewers of two factories enter above.

TILE SEWER TENDER WANTED

Pt. Dalhousie, Ont.—Sealed tenders, marked "Tender for Sewers," will be received up till noon on May 9th for the laying of about 9,000 feet of tile sewers, also separately for the supplying of the tile and manhole covers.

Plans and specifications may be seen either at the Village or at the office of the Engineer, Robert W. Angus, 217 Continental Life Building, Toronto.

The lowest or any tender will not necessarily be accepted. W. G. Sutton, Reeve.

PROGRESS ON NEW TORONTO WATER SYSTEM

New Toronto.—One of the pumps of the town's new water system has been installed in the pumping plant and the other is ready for installation. When all the pumps are in operation there will be five pumping filtered water and two pumping raw water. The two new pumps will account for 2,000 gallons per minute.

Imhoff Disposal For Peterboro

Officials of Provincial Department of Health Discuss Peterboro's Sewage Disposal System With City Officials

PETERBORO, ONT.—After insisting for a year or more that Peterborough must adopt the activated sludge type of sewage disposal plants, the Provincial Board of Health has at last consented to the installation of the Imhoff system for which City Engineer Parsons and the city council had fought since investigations had raised a doubt of the success of the activated sludge method.

The concession gained by the city was virtually wrested from the Provincial Board by a deputation composed of Mayor McIntyre, Aldermen Whitehouse, City Engineer Parsons, Mr. T. Tooms, M.L.A. They met the Hon. Walter Rollo, Dr. J. W. S. McCullough, Provincial Health Officer, and Mr. Dallyn, the board's engineer.

A statement that Peterborough was delaying the building of a sewage disposal plant in an evasive way was warmly repudiated by Alderman Whitehouse. It was pointed out that this

city's objections to the activated sludge system, which the board had ordered to be employed here, were based on the fact that it was still in the experimental stage.

The members of the deputation declared that they wished to co-operate with the Board of Health, but on this question they held that they should not be compelled to use the activated sludge system instead of the older and better known Imhoff method.

Hon. Mr. Rollo and Dr. McCullough discussed the matter with the deputation at considerable length, and in a very friendly way acceded to Peterborough's wishes.

This means that City Engineer Parsons, supported by the council, has won the last round in the dispute with the Provincial Board, and also that the city has no further reason for postponing the commencement of the sewage disposal plant.

Form Plumbing and Heating Baseball League

Plumbing and Heating Supply Houses and Sanitary and Heating Engineers of Toronto Form Baseball League

A BASEBALL league has been organized in Toronto under the name of the "Toronto Plumbing and Heating Supplies League," which is made up from the plumbing and heating supply houses of Toronto and the domestic, sanitary and heating engineers of Toronto.

It has been felt for several years that such an organization would be of great benefit to all those who could enter, as it would foster a friendly spirit among the various supply houses and provide means of recreation, and since the formation of this league it has been discovered that there are a large number of ball players who have recently contributed to the standard of this sport in this city in other leagues.

The following firms will be represented in the league:—

Crane Limited, Grinnell Co. of Canada, Master Plumbers' Association, Dominion Radiator Co. Ltd., Jas. Morrison Brass Co. Ltd.

The officers elected at the recent meeting were as follows:

Honorary presidents—G. A. Vowell, W. L. Horn, James Morrison, P. McMichael, John Wright; president, H. Ford; vice-president, W. Boddington; sec'y-treasurer, P. H. Jack; auditor, G. F. Frankland.

The league will be composed of strictly amateur players, who must comply with the rules of the C.A.A.U.

It is already seen that there is considerable interest being created by the formation of this new league and some real interesting contests are expected. In the future this league, it is hoped, will increase in membership.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

TENDERS WANTED

Calgary Alta.—General contract for erection of residence costing \$9,000 is awarded to Alberta Home Builders, 816 18th St. W. Tenders will be received by general contractors for all sub trades. Plans with Major & Stacey Judd, architects, 231 8th Ave. W.

* * *

Hamilton, Ont.—Tenders will be received by owner for plumbing and heating for two residences costing \$20,000 for W. D. Armstrong, Spectator Bldg.

* * *

Montreal, Que.—Filion & Freres, 2417 St. Denis St., will receive tenders for plumbing required for residence costing \$10,000.

* * *

Dauphin, Man.—Alex. Melville, architect, 401 Bank of Nova Scotia Bldg., Winnipeg, is revising plans and will call new tenders for erection of theatre estimated to cost \$50,000 for Dauphin Theatres, Ltd., Winnipeg.

* * *

Ioco, B.C.—General contract for erection of six residences costing \$17,204 for Imperial Oil Co. is awarded to Dominion Construction Co., 508 Richards St., Vancouver. This is first of actual unit awarded for what will be a model town of about 100 homes. Contract was originally let to Cut-to-Fit Building Co.

* * *

Amaranth, Man.—Plans will be revised and new tenders called for erection of

school estimated to cost \$25,000 for Consolidated S. D. of Flora, No. 1534.

* * *

Hamilton, Ont.—F. Sullivan, 203 Hunter St. E., will erect duplex apartments costing \$10,000 for D. Sullivan, 175 Young St., and will receive tenders for plumbing and heating.

* * *

Beulah, Man.—John Spalding, secy-treas. Miniota, Mun. S. D., Miniota, Man., has plans and will receive tenders until May 3 for erection of school estimated to cost \$30,000. Plans also with E. D. Tuttle.

CONTRACTS AWARDED

Sault Ste. Marie, Ont.—Plumbing and heating contracts for addition and alterations to high school are awarded to Mitchell & Cooper, Adams Block.

* * *

Ottawa, Ont.—Plumbing and heating contracts for school costing \$500,000 for Public School Board, 222 Gilmour St., are awarded to McKinley & Northwood, 56 Rideau St.

* * *

Toronto, Ont.—Heating and plumbing contracts for alterations to County Bldgs. for York County Council are awarded to H. G. Waterman & Co., 38 Hazelton Ave., and Keyes & Co., c/o James Proctor & Redfern, Ltd., Engrs., 36 Toronto St.

* * *

Truro, N.S.—Erection of school cost-

ing \$100,000 for school board. Plumbing and heating contract at \$14,000 is placed with Dexter & Co., 549 Prince St., Truro.

* * *

Lachine, Que.—Plumbing and heating contracts for departmental store costing \$30,000 for J. O. Tessier, 118 10th Ave., are awarded to B. Pilon, 80 11th Ave.

PATTERNS FOR SLOPING HOPPER Continued from page 17

Observe the plan lines represent base lines and therefore we pick each line separately as B-1, B-2, B-3, 4-A, A-5, A-6, A-7 from plan and set them on similar numbered lines over from H-1 which gives points 1-2-3-4-5-6 in true lengths. Draw lines to point H and you have the true lengths for the upper part of plan.

In the same way pick the lower lines of plan as C-1', C-2', C-3', etc., and set them on similar numbered line to the right of H-1 in diagram. This gives points 1'-2'-3'-4', etc.

When lines are drawn to point H you have the true lengths. In this case lines are not joined as the points are all we want.

Before the pattern can be set out we must find the true girth along the slope line 1-7 of elevation, since the girth along this line is considerably longer than the circumference of the circle in plan.

To do this square out right angle lines from each point as 2-3-4-5-6 in elevation and with dividers pick the half diameter lines from plan as 4'-4, 3'-3, 2'-2, and set them as 2-2', 6-6', 3-3', 5-5', 4-4' in elevation at "M."

Then through these points as 12'-3'-4', etc., sketch a uniform curve and you have the desired girth. Now to set out the pattern we proceed exactly as was explained for the former drawing where the top line was horizontal. In this case we start by drawing a line as B-C, equal to B-C of plan. Then with true length lines H-1 and H-1', we strike and cross arcs as in point 1 of pattern. After this for the girth spaces we use those spaces from M in numerical order, and developing each point as we go along. In this case we place the seam in the throat, but this can be set where desired. And the pattern can be set out in as many pieces as desired for convenient assembling. Laps must be allowed extra.

Backgrounds, fittings and display fixtures all out of line with the goods is another error made by many store-keepers, and many a good article has lost its power by being placed on a broken or rusty fixture. For example, a store on Yonge Street, Toronto, placed a display of auto grease in the window the other day. The same was arranged on a glass shelf and was subject to the direct rays of the sun. Before long the heat of the sun on the glass shelf melted the grease and it ran down and along the bottom of the window.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PIPING forms the chief feature of the price changes this time and a new list on pipe shows a reduction on wrought pipe as well as on steel. Other declines include Canada plate, bar iron, black and galvanized sheets, plumbers' oakum and brass supply pipe. Some wholesalers are quoting an increased discount on enamelled wares and brass compression work is also weaker and price cutting is reported on different lines. Solders have been advanced slightly and the lead market shows firmness. No changes have been made on radiation, corrugated sheets, range boilers, soil and conductor pipe, or cast or malleable fittings. A better tone is reported on ingot metals and tin and lead show advances. In the primary

steel markets there is not much increase of activity, but prices are considered to have been stabilized, and little further change is expected in the near future. The Steel Corporation prices have been accepted as a basis and the independents having come up to those prices while they were below it is thought that present prices are likely to hold.

A little improvement is reported in a few lines, but, taken altogether, buying is still slow, and although manufacturers and wholesalers are looking for an improvement as the season advances and new houses are needed badly it is recognized that new building construction is not being proceeded with as rapidly as might be.

MONTREAL MARKETS

MONTREAL, April 29.—The feature of the market on plumbing and steam fitting lines is the new list, No. 51, showing lower prices on wrought iron and steel pipe. Other lines lowered include Canada plate, oakum, iron and steel bars. Enamelled ware is now on a very unsettled market, price-cutting being evident among manufacturers and jobbers. Many lines of compression goods are in the same situation. Black and galvanized sheets are revised with lower prices given, while corrugated sheets, eavestrough, conductor pipe, radiators, hot water and steam boilers, boiler tubes, range boilers and cotton waste are unchanged. Linseed oil and turpentine have advanced during the past week. Ingot metals are continuing firm.

No Change in Soil Pipe

Montreal.

There is no change in soil pipe since the change in discounts two weeks ago. Sales are improving as the weather opens, but are still moving in small shipments for this time of year. Following are quotations:

SOIL PIPE (medium and extra heavy)—
2, 3, 15%; 5 and 6-inch, 20% discount.
4-inch, 25% discount.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Enamelled Ware Unsettled

Montreal.

A reported "break" is the information gained on enamelled ware. The continued steady market of the past months of this year is said to have given way to a series of price cutting to obtain business. One local jobber claims they are now quoting from 10 to 15 per cent. below prices given under. For instance, the five-foot bath tub showing at \$41.12 is now selling at \$34.00 at this source.

Different reasons are given for the present unsettled condition, but the most feasible one is that prices were considered too high and manufacturers and jobbers are taking it in their own hands to reduce them. A new price list is expected in the near future. Following are quotations that have been ruling up to the present:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 00 \$5 92 \$5 84
18 x 30	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories—	
17x19" Apron F139 or P4045	12 24
18x24" Apron F154 or P3845 or P3847 ..	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345	10 08

Closets Also Unsteady

Montreal.

There is also an unsteady market on closets, dealers making their own selling prices. Although newer quotations than these quoted below are not yet available, a discount of from 10 to 15

per cent. is given off these prices by most dealers. There is also a limited demand for closets, with little improvement expected until building construction commences more in earnest.

Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Plumbers' Oakum Reduced

Montreal.

A reduction has been made in the price of plumbers' oakum, and it is now quoted at \$3.75 per 50 pound bale, and ten cents per pound in broken quantities.

Brass Goods at Cut Prices

Montreal.

The list prices on all lines of compression goods are unchanged, but are also on a very unsteady basis. In line with enamelled ware and closets dealers are offering more attractive figures to obtain business. New prices are expected in the near future in an effort to again settle the market. Following is list that has been the ruling figures in the past:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard ..	34%
Roundway stop and waste cocks, standard ..	34%
Brass steam cocks, standard	10%

Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard...	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10%

Canada Plate Lower

Montreal.

Although the present time is considered an off season for Canada plates, and there is very little moving, prices show a reduction this week. The outlook for the fall trade is very bright, the scarcity of last year being well overcome, and prices will no doubt be considerably lower. The present reduction brings the 60 sheet boxes down to \$9.00, and the 52 sheet \$8.75.

Eavetrough, Etc., Now Selling

Montreal.

Eavetroughing, conductor pipe and conductor elbows are now in good demand. Manufacturers and jobbers are looking for these lines to be active from now on, particularly as dealers held off in their buying during the early months of this year, the time that bookings are generally forwarded. Quotations are holding at lists prepared early in the year and are as follows:

EAVETROUGH—			
O.G. Square Bead—			
	Per 100 ft.		Per 100 ft.
8 in.	15 90	15 inch	28 80
10 in.	17 70	18 inch	36 80
12 in.	21 20		
O.G. Round, and Half Round—			
8 in.	16 90	15 inch.	29 80
10 in.	18 70	18 inch	37 80
12 in.	22 20		
Discount 50/10% off list.			
CONDUCTOR PIPE—			
	Per 100 Ft.		
2 in.	18 40		
3 in.	22 30		
4 in.	29 60		
5 in.	40 00		
6 in.	49 00		
Discount 50/10% off.			
CONDUCTOR ELBOWS—			
Plain round or round corrugated—			
2 inch	5 25		
3 inch	6 00		
4 inch	10 50		
5 inch	24 00		
6 inch	29 00		
Discount 50% off.			

Pipe Fittings Revised

Montreal.

A revision on some lines of pipe fittings is made. There is no notable change in prices, however, while the demand is keeping up fairly well. Stocks are in very good shape in all sizes. Following are present quotations:

Following are present quotations:		
Cast iron fittings		20%
Bushings, cast		30%
Do., malleable		30%
Flanges		27%
Plugs	22 1/2%	
Flange Unions		20%
Maleable Unions		40%
Dart Unions, black		29%
Do., galvanized		8%
Nipples, 1/2 to 4" close and short.....		40%
Do., long		50%
Do., 1/2 to 8" close and short.....		30%
Do., long		40%
Couplings, 4" and under		20%
Do., 4 1/2" and larger		Net list
Pound Goods—		
Class B	Blk.	Galv.
	0 20	0 28
Class C	0 13	0 20
Add 10%.		

Turpentine, Oil and White Lead

Montreal.

This week shows a much firmer market on linseed oil and turpentine, ad-

vances being made in both cases. White lead in oil is unchanged. In broken quantities, raw linseed oil is quoted at 91 cents, boiled 93 1/2 cents, turpentine \$1.00, containers charged extra. White lead in oil still costs \$14.85 per 100 pounds.

Radiation Still Backward

Montreal.

Radiators and boilers are still moving in limited numbers, in line with building activities. Dealers, however, are optimistic toward the future months of spring and summer, based on the prospects now in hand. Quotations are unchanged, being 48 per cent. off list for hot water and 49 per cent. for steam, wall radiation 45 off. It is anticipated that present prices will remain firm, based upon present productive costs, although it is reported radiators are now being imported at attractive figures, and this may have its results in the near future. Following are quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.	
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount. 48% for hot water and 49% for steam.	
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.	
Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 55% off list.	
Square or sectional hot water or steam boilers, 15-in., 5%.	
For Ontario Government trimmings add 5 per cent.	
Square or sectional water boilers, 19-in to 36-in., 5% off list.	
Square or sectional steam boilers, 19-in. to 36-in., 5%. Ontario Government trimmings, net list.	
Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10%.	
All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.	

Boiler Tubes Slow

Montreal.

With the exception of the best selling sizes for repair work the movement of boiler tubes is reported still slow. Inquiries, however, are more numerous and an improvement is anticipated in the near future. Quotations are remaining unchanged as follows:

BOILER TUBES—		Seamless	Lapweld
1 inch		26 00	.....
1 1/4 inch		27 25	.....
1 1/2 inch		26 25	.....
1 3/4 inch		29 75	27 00
2 inch		29 25	24 50
2 1/4 inch		33 00	28 50
2 1/2 inch		44 75	32 50
3 inch		49 25	40 00
3 1/2 inch		63 50	43 50
4 inch		85 00	55 50

Waste Selling Fairly Well

Montreal.

Cotton waste is now selling in good quantities, a continued improvement being noted in the last few weeks. Prices on all lines are holding, and following are quotations:

Cream, Polishing	0 22
WHITE	
XXX	0 18 1/2
XX	0 17 1/2
X	0 16 1/2
XLOR	0 16 1/2
X Empire	0 15
X Press	0 13 1/2
6X Special	0 12
COLORED	
Fancy	0 15
Lion	0 13 1/2

Standard	0 12
Popular	0 10 1/2
Keen	0 09
WOOL PACKING	
Arrow	0 82
Axle	0 27
Anvil	0 22
DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 23
Colored Cotton	0 18
Above lines subject to trade discount for quantity.	

Bars Now \$3.70 Base

Montreal.

Iron and steel bars have been lowered 30 cents per 100 pounds, bringing common bar iron, mild steel, band steel and sleighshoe steel down to \$3.70. Other bars have the same decline. These quotations are thought to be well down to bottom prices for some little time now, as the recent action of both the United States independents and the Steel Corporation in bringing their quotations to the same level has caused a much steadier feeling. Following are quotations at the decline:

Common bar iron, 100 lbs.	3 70
Refined iron	5 20
Iron finish machinery steel	3 75
Mild steel	3 70
Single reeled machinery steel	5 75
Band steel	3 70
Spring steel	5 00
Sleighshoe steel	3 70
Tire steel	3 90
Toe calk steel	4 60
Harrow tooth steel	3 85
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb. 0 23	

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.
Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Sheets Are Lowered

Montreal.

Lower quotations are given on black and galvanized sheets. The reduction on black sheets is slight, while the U. S. standard galvanized sheets are 50 cents lower throughout, English 75 cents on all gauges. These declines are made from present stocks in the jobbers' hands and are thought to be the steady basis for some time. The recent action of the United States independents and the Steel Corporation in bringing their quotations to the same level will in all probability have a steadying effect on all steel products. The present demand is showing a little better, and a continued improvement is now looked for. Following are present quotations, shown with a range, as the prices vary among the different jobbing houses:

PLATES—		
10 gauge	5 25	6 25
12 gauge	5 30	6 30
14 gauge	5 45	6 45
16 gauge	5 55	6 55
BLACK SHEETS—		
14 gauge	5 45	6 45
16 gauge	5 55	6 55
18-20 gauge	6 15	7 15
22-24 gauge	6 25	7 25
26 gauge	6 35	7 35
28 gauge	6 50	7 50
Sheets 36 in. wide, 10c per 100 lbs. extra.		
GALVANIZED SHEETS—		
U.S. Standard—		
10 1/4 oz.	8 75	9 75
28 gauge	8 25	9 25
26 gauge	8 00	9 00
22 and 24 gauge	7 85	8 85
20 gauge	7 65	8 65
18 gauge	7 65	8 65
16 gauge	7 50	8 50

English Standard—	Queen's Head	Fleur-de-lis
28 gauge	10 00	9 25
26 gauge	9 75	9 00
24 gauge	8 15	8 60
22 gauge	8 80	8 15
18 and 20 gauge	8 10	8 00

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Scrap Metals Very Quiet

Montreal.

There is little improvement in the scrap market and it remains very dull. The recent action of the United States steel mills is looked upon with interest, and is hoped to locate a demand for many scrap metals. Some dealers are of the opinion that an improvement is close at hand. Following are nominal quotations:

Dealer's Buying Prices.		
Automobile tires	0 75	
Yellow brass	0 05	
Red brass	0 08½	
Light brass	0 04	
Scrap zinc	0 04	
Lead, heavy	0 03½	
Lead, tea	0 02	
Light copper	0 08	
Heavy copper	0 10½	
Wrought iron, R. Rd., No. 1 per gr. ton	12 00	
Malleable scrap (ton)	11 50	
Pipe scrap (ton)	8 00	
Heavy melting steel	8 50	
No. 2 busheling	4 00	
Boiler plate	0 08	
Boiler plate	0 11	
No. 1 machinery cast	25 00	28 00

Corrugated Sheets Unchanged

Montreal.

There are no changes to report on quotations of galvanized corrugated sheets. The demand continues to improve and dealers anticipate some steady business now that the weather has opened, stocks being very low throughout the country. Following are the unchanged quotations:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00

Less 7½%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Fair Sales of Range Boilers

Montreal.

Range boilers are moving in small orders, one and two being forwarded where dealers last year were buying in quarter and half dozen lots, but orders are numerous and general throughout the country. Quotations are practically unchanged, although on the 30 gallon standard boiler prices are \$12.00 and \$12.50. On the electric welded the same is selling from \$10.50 to \$11.50 for the standard and \$14.65 for the heavy. Following are quotations on all sizes:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	12 50	15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	24 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Lead Products Firm

Montreal.

A much firmer market is shown on lead products this week, and an advance of one cent per pound is made on all solders. There has been a firmer ten-

dency prevailing in the past few weeks, but this is the first advance made on any of the products. Pig lead continues to show strength in the primary market, and it is generally believed that the bottom has been reached. Following are quotations:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10½
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 13
Do., broken lots	0 13½

Piping Declines: New List

Montreal.

A new list, No. 51, has been issued and is effective from April 25 on steel and wrought pipe. One-eighth inch pipe remains unaffected, and the reductions on ¼ inch and up vary in amount, the previous basing having been changed. Small reductions are made on wrought pipe from the 1-inch size up. The following is the new list:

Price List No. 51. April 25th, 1921.
Standard Butt Weld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1/8 in.	\$ 6 50	\$ 8 50	\$ 5 91	\$ 8 01
1/4 in.	4 71	6 81	5 91	8 01
3/8 in.	4 71	6 81	5 91	8 01
1/2 in.	6 16	7 78	7 95	9 48
3/4 in.	7 42	9 49	9 95	12 02
1 in.	10 63	13 69	14 37	17 43
1 1/4 in.	14 88	18 52	19 44	23 58
1 1/2 in.	17 19	22 14	23 24	28 19
2 in.	23 13	29 79	31 27	37 93
2 1/2 in.	36 56	47 09	.....	.....
3 in.	47 81	61 58	.....	.....
3 1/2 in.	63 02	79 58	.....	.....
4 in.	74 67	94 29	.....	.....

Standard Lap Weld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$26 83	\$33 49	\$34 97	\$41 63
2 1/2 in.	40 07	50 60	52 94	63 47
3 in.	52 40	66 17	69 23	83 00
3 1/2 in.	63 94	80 50	84 18	100 74
4 in.	75 76	95 38	99 74	119 36
4 1/2 in.	85 73	108 59	1 16	1 39

TORONTO MARKETS

TORONTO, April 29.—Wrought iron pipe has been reduced and forms the outstanding feature of this market. This is the first change in wrought iron pipe since July. Enamelled wares have been lowered 10 per cent. by wholesalers, but closet prices are nominally unchanged. Other reductions include brass supply pipe, plumbers' oakum and Canada plate. Prices have been adjusted on some makes of torches and firepots. Prices are held without change on radiation, range boilers, corrugated sheets, eavestrough and conductor pipe, bar iron and steel and pipe fittings. Lead and zinc products show firmness although actual advances have not yet been made. Brass compression work is weak with price-cutting reported. Scrap metals are showing no change and are still slow. Ingot metals display a better tone and tin and lead are higher.

Little change is visible in business, but though sales are not improving very rapidly, dealers are still optimistic.

Wrought and Steel Pipe Down

Toronto.

The April 1 issue of Sanitary Engineer announced a new lower price list on steel pipe, the second decline within a month, and another reduction became

5 in.	99 90	126 54	1 35	1 62
6 in.	1 30	1 64	1 76	2 10
7 in.	1 75	2 23	2 32	2 75
8L in.	1 84	2 34	2 44	2 89
8 in.	2 12	2 69	2 81	3 33
9 in.	2 54	3 28	3 36	3 98
10L in.	2 35	2 99	3 12	3 70
10 in.	3 03	3 85	4 02	4 76

Ingot Metals Continue Firmer

Montreal.

The ingot market this week continues to show an improvement, and the sentiment seems decidedly better. Buyers are also more interested in the different lines, and although this might be stated as being only a seasonable condition, it is significant that a better feeling now exists, also very welcome when the past quiet months are taken into consideration.

TIN.—Tin has been quite strong in London, having touched the highest point since last February. Although this has eased off in the last few days, the market remains firm. The local price has advanced to 39 cents.

COPPER.—Little can be said of copper this week, the market remains steady and little change is looked for. Electro is quoted at 18 cents, casting at 17½ cents.

SPELTER.—This metal has been quite strong, especially in the United States, where it has touched 5 cents, East St. Louis. The market seems strong, owing to the better demand from the galvanizers. Local price unchanged at 8½ cents.

LEAD.—Lead continues firm in London and in U.S.A. the trust price has been advanced 10 cents per 100 pounds. It is hardly expected prices will go much higher at present. Local price unchanged at 6¼ cents.

ANTIMONY.—This metal is slightly stronger in New York, but the demand remains quiet, there is no change in the local price, 6½ cents for Chinese and 8½ for high grade English.

ALUMINUM.—Aluminum is still dull on the market, with price unchanged at 35 cents.

effective April 25, making four lists which have been in use in the past seven weeks. The new list, No. 51, shows a decline in wrought iron pipe as well as steel, and it is noted that there has been no change in the price of wrought pipe

since July, 1920. The changes do not follow the same rate all through and are based on the new scale issued by the Steel Corporation recently. One-eighth inch piping has not been changed at all. In wrought pipe the decline starts at the 1 inch size, the smaller sizes being left as they were. Business continues on a small scale but is said to be slightly improved. The new list follows:

Price List No. 51. April 25th, 1921.

Size	Standard Butt Weld Pipe S/C		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1/8 in.	\$ 6 50	\$ 8 50	\$ 5 91	\$ 8 01
1/4 in.	4 71	6 81	5 91	8 01
3/8 in.	4 71	6 81	5 91	8 01
1/2 in.	6 16	7 78	7 95	9 48
3/4 in.	7 42	9 49	9 95	12 02
1 in.	10 63	13 69	14 37	17 43
1 1/4 in.	14 38	18 52	19 44	23 58
1 1/2 in.	17 19	22 14	23 24	28 19
2 in.	23 18	29 79	31 27	37 93
2 1/2 in.	36 56	47 09		
3 in.	47 81	61 58		
3 1/2 in.	63 02	79 58		
4 in.	74 67	94 29		

Size	Standard Lap Weld Pipe S/C		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$26 83	\$33 49	\$34 97	\$41 63
2 1/2 in.	40 07	50 60	52 94	63 47
3 in.	52 40	66 17	69 23	83 00
3 1/2 in.	63 94	80 50	84 18	100 74
4 in.	75 76	95 38	99 74	119 36
4 1/2 in.	85 73	108 59	1 16	1 39
5 in.	99 90	126 54	1 35	1 62
6 in.	1 30	1 64	1 76	2 10
7 in.	1 75	2 23	2 32	2 75
8 in.	1 84	2 34	2 44	2 89
8 1/2 in.	2 12	2 69	2 81	3 33
9 in.	2 54	3 23	3 36	3 98
10 in.	2 35	2 99	3 12	3 70
10 1/2 in.	3 03	3 85	4 02	4 76

Pipe Fittings Held

Toronto.

There has been no further change in pipe fittings and these are held at the declines noted in the last issue of Sanitary Engineer. Sales generally continue light and stocks of wholesalers are reported to be adequate. The changes in piping have not affected the prices of wrought nipples. The following are current quotations:

Cast iron fittings	20%
Plugs, cast	27 1/2%
Do., solid	10%
Do., countersunk	Net list
Bushings	30%
Unions, 1/4 in. to 2 in.	40%
Do., 1/4 in. to 2 1/2 in.	35%
Dart-Unions, blk., 1/4 in. to 2 in.	29%
Do., 1/4 in. to 2 1/2 in.	14%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4 1/2" and larger	30%
Long, 4" and under	50%
Do., 4 1/2" and larger	40%
Running thread, 4" and under	20%
Do., 4 1/2" and larger	...
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4 1/2" and larger	Net

MALLEABLE FITTINGS		
Class A	0 60	0 75
Class B	0 24	0 33
Class C	0 15	0 24

Soil Pipe Unchanged

Toronto.

A slight increase in sales of soil pipe and fittings is reported as the season is advancing, but the demand is still below the normal. With an increase in building construction an improvement in business is hoped for. There has been no change in prices and discounts are as follows:

SOIL PIPE—	
2 and 3 inch, 10%.	
4 inch, 20%.	

5 and 6 inch, 15%.	
8 inch, add 5 %.	
FITTINGS—	
2 to 6 inch fittings, 40%.	
8 inch fittings, plus 5%.	

Extra 10 p.c. Off Wares

Toronto.

Wholesalers are quoting an extra 10 per cent. off enamelled ware lists, and the discount is now 20 and 10 per cent. Jobbers hope that the reductions made by them will have a stimulating effect on business and with any increase in new building construction there should be a better demand for wares. Lists are the following:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5 1/2 ft.	57 10
All Steel Enamel Baths, 4, 4 1/2 or 5 ft., net	16 25
Do., do., 5 1/2 ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20/10% off these prices.	

Closet Price Held

Toronto.

No changes are reported in closet prices, but with the declines in other plumbing lines there is a weak tendency and many look for prices to be easier. Business is reported to be but little improved. Quotations are nominally the following:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., white vitro, vitreous china, or enamel-iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

Compression Work Unsteady

Toronto.

Although no definite change has been made in prices and the recognized trade discounts are supposed to be still in effect there is reported to be considerable price cutting in different lines and the market is unsettled. The tendency would appear to be downwards and brass goods in U.S. markets have recently undergone price declines. Some improvement in sales is reported but business generally is scrappy. Stocks are stated to be in fair shape. The following are the nominal quotations:

Compression work, standard	34%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	25%
Flatway stop and waste cocks, standard	34%
Roundway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	10%

J.M.T. C.	15%
J.M.T. Gate Valves	15%
Gate or straightway	7/10%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable discs	33%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Canada Plate Reduced

Toronto.

Although this is not the season of the year when there is much demand for Canada plate, there has been a reduction in price and quotations are down to \$8.75 and \$9 per box. Supplies from England are available, it is stated, and there should be no recurrence of the difficulty that was experienced last season in securing deliveries of this commodity.

Eavestrough Sales Increase

Toronto.

A considerable improvement in sales of conductor pipe and eavestrough and ridging is reported. The opening up of the season has allowed repair work to be proceeded with and orders for material are encouraging. Prices are held unchanged and are as follows:

TROUGH (Eave)		
O. G., Square Bead and half round.	Size in	Per 100 ft.
8-in.	Per 100 ft.	15 90
10-in.	Per 100 ft.	17 70
12-in.	Per 100 ft.	21 20
Less 50/10 per cent.		

PIPE (Conductor)		
Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths.	
2 in., in 10-ft. lengths, list	18 40	
3 in., in 10-ft. lengths, list	22 30	
4 in., in 10-ft. lengths, list	29 60	
5 in., in 10-ft. lengths, list	40 00	
6 in., in 10-ft. lengths, list	49 00	
Less 50/10%.		

Conductor Elbows Moving

Toronto.

There is a better movement of conductor elbows and sales are showing considerable improvement. Quotations remain unchanged and are the following:

CONDUCTOR ELBOWS—	
2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 50%.	

No Range Boiler Changes

Toronto.

There are reported to be no changes in the prices of range boilers and wholesalers state that while there is a steady movement very little increase in sales is noticeable. Quotations on riveted boilers are given below and the electric welded boiler is being quoted at \$11.50 and \$11.75 in the 30-gallon standard size.

RANGE BOILERS—		
	Standard	Ex. Heavy
30 gallon	12 50	15 00
35 gallon	15 00	17 00
40 gallon	17 00	19 00
52 gallon	21 00	28 00
66 gallon	32 00	38 00
82 gallon	40 00	50 00
100 gallon	50 00	60 00
120 gallon	60 00	70 00

Radiators are Unchanged

Toronto.

No changes in lists or discounts are reported on radiation, and 48 per cent. for hot water and 49 per cent. for steam are still the quotations with 45 per cent.

off wall list. Not much improvement is shown yet in the demand for these lines and an increase in building activity is wanted to advance sales. Quotations are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 48% for hot water and 49% for steam.
Wall Radiators—6 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Weaker Tendency in Bars

Toronto.

No changes are reported to have been made in wholesalers' prices in bar iron and steel since the last market report, but there is a weaker tendency and the trend appears to be downward. Jobbers state that their stocks while not heavy are ample for present requirements and little extra business could be secured by lower quotations. Buying is largely from hand to mouth still and reductions in prices do not stimulate it at all. The market appears to be more settled in the United States as a result of the price policy of the Steel Corporation and consumers expect but little change in the near future in prices. The present rate of pig iron production is about one-third of capacity. Quotations here are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	\$ 4 50
Do., 1/4 in. and heavier	4 00
Common bar iron, 3-16 in. and lighter	4 50
Do., 1/4 in. and heavier	4 00
Angle base	4 10
Horseshoe iron	6 00
Tire steel	5 95
Band steel	4 50
Spring steel	12 75
Mining drill steel	23 00
Crucible cast sheet steel	35 00
Sheet cast steel	35 00
Sleighshoe steel	4 50
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Plumbers' Oakum Lower

Toronto.

Quotations on plumbers' oakum are lower and for quantities the price is \$3.75 per bale. For small lots the price is 9 to 10 cents per pound.

Corrugated Sheets Selling

Toronto.

The demand for corrugated sheets is reported by some wholesalers to be showing considerable improvement. At this season of the year there is a quantity used for building garages and for roofing and other jobs. The bulk of the trade is being done in the lighter gauges. Prices are held unchanged and are as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	9 50
No. 26 gauge	10 25
No. 24 gauge	16 00
No. 22 gauge	19 00
No. 20 gauge	22 00
No. 18 gauge	28 00
Less 7 1/2%.	

Lead Market Firmer

Toronto.

No changes are reported in prices of lead or zinc products here, although outside markets are firmer and solders have been advanced slightly. In the

primary lead markets there is a slight increase in price and there is a feeling that the bottom has been reached in lead. Stocks are smaller but are stated to be ample for the present rate of consumption and production is very much less than it has been during the past few years. The following are present quotations:

Lead pipe, list, per lb.	0 12 1/2
Lead waste pipe, list, per lb.	0 13 1/2
Do., over 8 in., list, per lb.	0 14 1/2
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09 1/2
Cut sheets 1/2 c to 3/4 c lb. extra and cut sheets to size 1 c lb. extra.	
Solder, wire, lb.	0 34
Do., 40-60	0 26 1/2
Do., 50-50	0 29
Do., strictly, lb.	0 24
Do., commercial, lb.	0 22
Do., guaranteed, lb.	0 27
Do., wiping, lb.	0 22
Zinc sheets, per lb.	0 16
Calking lead	0 08

Copper and Brass Weak

Toronto.

No changes have been made in prices of sheet copper or brass but the tendency is reported weak, although the bottom is thought to have been reached in primary copper markets and an increase in copper prices is looked for. The following are market quotations:

BRASS—	
Sheets, base, per lb.	\$0 29
Rods, base, per pound	0 26
Tubing, base, per lb.	0 36
COPPER—	
Rods, base, per pound	0 34
Soft sheets, plain, 16-oz. and heavier, lb.	0 34
Do., plain tinned	0 40
Do., polished and tinned	0 45
Tubing	0 39

Boiler Tubes Easier

Toronto.

The demand for boiler tubes has not improved greatly and is still "scrappy." There has been a gradual easing of prices, which are showing reductions. The average quotations are as follows:

	Per 100 feet	\$
1 inch	\$28 00	
1 1/4 inch	30 00	
1 1/2 inch	32 00	
1 3/4 inch	33 00	
2 inch	35 00	28 00
2 1/4 inch	38 00	32 00
2 1/2 inch	46 00	36 00
3 inch	54 00	45 75
3 1/2 inch	70 00	46 00
4 inch	92 00	60 00

Sheet Quotations Lower

Toronto.

Prices on sheets and plates have eased since the last report but continue to show variations in different quarters. The range is given below. Business is reported to be light and though some improvement is shown, it is still "spotty." In U.S. markets there is stated to be little increase of new business and though the new prices have brought only a limited amount of new business sellers express no doubt that present prices will hold for some time as neither the Steel Corporation nor the independents seem disposed to reduce prices further at the present time. The following are the market quotations here:

BLACK SHEETS		
14 gauge	5 10	6 10
16 gauge	5 20	6 20
18-20 gauge	5 75	6 75
22-24 gauge	5 80	6 80
28 gauge	5 85	6 85

28 gauge	6 00	7 00
PLATES		
10 gauge plate	5 00	6 00
12 gauge	5 05	6 05
14 gauge	5 10	6 10
16 gauge	5 20	6 20

GALVANIZED SHEETS

Premier and Apollo

10 1/2 oz.	8 60	9 60
U.S. 28 gauge	8 20	9 20
U.S. 26 gauge	7 90	8 90
18 and 20 gauge	7 60	8 60
16 gauge	7 45	8 45
12 and 14 gauge	7 40	8 40

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10 1/2 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

New "C. & L." Torch Prices

Toronto.

Prices have been revised on some of the Clayton and Lambert make of torches and firepots. The following are the new quotations on some of the better sellers:

CLAYTON & LAMBERT TORCHES.—No. 18, \$7.70; No. 31, \$9.70; No. 38, \$8.80.
FIRE POTS.—No. 71, \$16.50; No. 72, \$15.

Cotton Waste Holding

Toronto.

No changes have been made in waste prices and the demand is stated to be improving. The following are present quotations:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 21
XX	0 19 1/2
X	0 17 1/2
XX, grad.	0 17 1/2
XLGR	0 16 1/2
X Empire	0 16
X Press	0 18 1/2
XC	0 16 1/2
COLORED	
No. 1	0 14 1/2
No. 7	0 13 1/2
No. 1A	0 12 1/2
No. 1B	0 11 1/2
Fancy	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09

Above lines subject to trade discount for quantities.

Oil and Turps Firmer

Toronto.

No changes have been made in the prices of white or red lead, dry or in oil, but turpentine has taken an upward turn and is quoted 10 cents higher than at the time of the last report. Quotations for single barrels are now \$1 per gallon. Linseed oil is still at 77 cents per gallon for single barrels. Smaller quantities of both are 15 cents per gallon extra and containers are charged extra.

Scrap Metals Sluggish

Toronto.

The condition of the waste markets is still sluggish and the consuming demand shows no quickening. Buying is largely hand to mouth and few dealers look for much improvement for a while. Signs of improvement have not been lacking but manufacturers using waste have large stocks on hand. Prices are mostly easy but holders are waiting for higher prices and are not pressing sales. The

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To meet the requirements of the Canadian market **MUELLER** now offers the latest improved construction in Flush Valves No. A-3375.

MUELLER Imperial Flush Valves

are fully warranted to stand every reasonable test—are impervious to corrosion—have the well known **MUELLER** precision of manufacture—and can be depended upon to give absolute and lasting satisfaction.

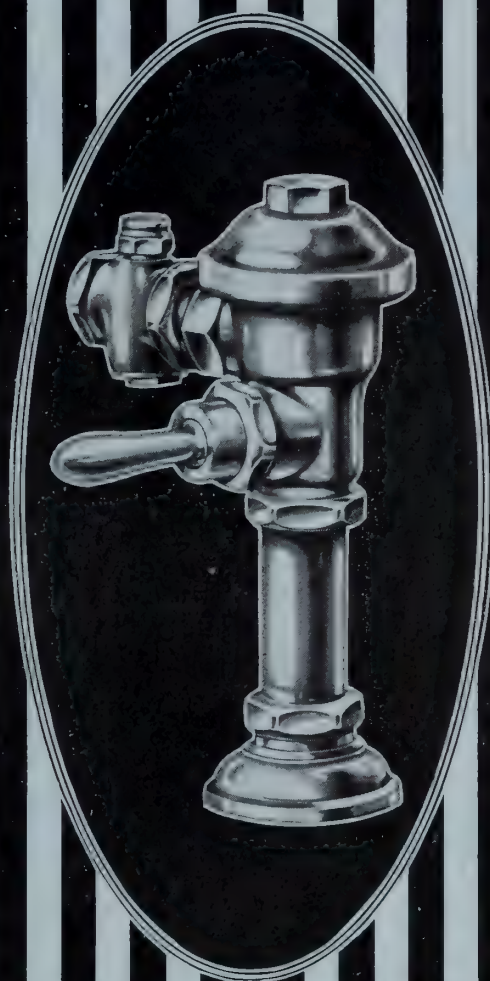
The lever moves with the slightest touch—but cannot be held open to waste water. Specify No. A-3375 when ordering, or write for description and prices. Mail orders given prompt attention.

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Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip"
Brass Rod; Brass and Copper Tubing; Forgings and Castings
in Brass, Bronze and Aluminum; Die Castings in White Metal
and Aluminum; also Screw Machined Products.



following are nominal prices for fairly large quantities:

WASTE MATERIAL		
No. 2 busheling	13 00	
Stove plate, per ton	19 00	20 00
Scrap pipe	8 00	9 00
Yellow brass	6 50	7 50
Red brass	10 00	
No. 1 machinery cast	24 00	25 00
Heavy melting steel	13 50	14 50
Heavy copper	10 50	11 00
Light copper	8 00	9 00
Scrap zinc	3 75	4 25
Light brass	4 00	4 50
R.Bd. wrought iron, No. 1, per gr. ton	13 50	14 50
Heavy lead pipe	3 75	4 00
Old rubbers, boots and shoes	2 00	2 50
Overshoes, lumbermen's rub. boots	2 00	2 50
Bicycle tires	0 75	1 25
Automobile tires	0 50	1 00
Tea lead	1 75	2 00

Brass Supply Pipe Reduced

Toronto.

Prices have been reduced on brass supply pipe, and the $\frac{3}{8}$ inch, nickel plated, with reducing coupling to floor or wall is now quoted at \$2.36 per pair. The same in $\frac{1}{2}$ inch size are \$2.86 pair.

Ingot: A Better Tone

Toronto.

There is a better tone to metals this week, but the demand is not well defined and ingot metals are still very irregular. Tin has advanced $2\frac{1}{2}$ cents, lead is firmer, copper, however, is disappointing to sellers and is weaker. Spelter is more active and more demand is shown for the other metals.

TIN.—This metal has advanced $2\frac{1}{2}$ cents per pound on local markets. United States markets are higher on an advance of £6 in London and an advance of one cent in sterling exchange. A fair amount of speculative buying is reported. Quotations here are $38\frac{1}{2}$ cents.

COPPER.—Consumers are reported to be in the market for copper but are not very anxious to close orders as lower prices are reported. Foreign buying lacks animation in United States markets and a light domestic consumption is reported. The trend is toward weakness but prices are unchanged here at 18 cents for casting copper.

LEAD.—There is an improved demand for this metal and the tone is firmer on home markets and in the United States, but London markets eased off and prices dropped 7s. 6d. to £20 15s. for spot. Prices here advanced 25 cents to \$6.25.

SPELTER.—This has been the most active metal in the market and on United States markets has registered advances each day. Producers are not disposed to quote ahead. English markets are also firmer. Quotations here are unchanged at \$7.25.

ANTIMONY.—Increased inquiries have developed more strength on United States markets in this metal. Quotations locally are unchanged at 8 to 9 cents.

ALUMINUM.—An improved demand is noted and prices generally are unchanged. The local price is 30 cents.

WINNIPEG MARKETS

WINNIPEG, April 29.—The most important price changes in plumbing and steam fitting lines since the last report are new lower prices on wrought iron and steel pipe, cast and malleable pipe fittings, black and galvanized sheets, tinplate, sheet copper, galvanized range boilers, candle wick packing and plumbers' oakum. Business is gradually picking up in plumbing lines and prospects of further improvement appear good.

Candlewick Packing Reduced

Winnipeg.

A lower price is quoted on candlewick packing this week and it is now selling for 48 cents per pound.

Sheet Zinc Reduced

Winnipeg.

The price of sheet zinc has been reduced $7\frac{1}{2}$ cents per pound and is now selling at $17\frac{1}{2}$ cents per pound.

Galvanized Range Boilers Decline

Winnipeg.

The prices of galvanized range boilers have declined and are as follows: 30 gallon \$13 each, 35 gallon \$15, 40 gallon \$17, 52 gallon \$24, 66 gallon \$32, 82 gallon \$40, 100 gallon \$50, 120 gallon \$60.

Plumbers' Oakum Declines

Winnipeg.

A reduction has been made in the price of plumbers' oakum and the new selling price is \$5 per bale.

Wrought Iron Pipe Reduced

Winnipeg.

Declines have been made in the prices of steel and wrought iron pipe. The amount of the decline varies on different sizes. One-eighth inch pipe is unchanged and no reductions have been made in the wrought pipe below the 1-inch size. The new lists are not yet available.

Sheet Copper Declines

Winnipeg.

The price of sheet copper has declined slightly and tinned is now selling at 55 cents per pound and planished at 60 cents per pound.

Black and Galv. Sheets Decline

Winnipeg.

Prices have again been revised on black and galvanized sheets and are somewhat lower. The new prices which have been in effect for over a week are given below:

BLACK SHEETS —10 ga., \$7.15; 12 ga., \$7.15; 14 ga., \$7.20; 16 ga., \$7.30; 18 ga., \$7.80; 20 ga., \$7.80; 22 ga., \$7.85; 24 ga., \$7.85; 26 ga., \$7.90; 28 ga., \$8.15.	
GALVANIZED SHEETS —16 ga., \$9.10; 18 ga., \$9.25; 20 ga., \$9.25; 22 ga., \$9.40; 24 ga., \$9.40; 26 ga., \$9.55; 28 ga., \$10.15; 10½ oz., \$10.55.	

Tin Plate Declines

Winnipeg.

Prices for tin plate have declined this week and are as follows:

In Full Boxes—		Per Box
IC 20 x 28		\$23 75
IC 20 x 33		25 50
IX 20 x 28		27 00
IX 20 x 33		33 50
In Half Boxes—		
IC 20 x 28		\$12 50
IC 20 x 33		14 75

IC 20 x 39	18 00
IX 20 x 28	14 00
IX 20 x 33	17 25
IX 20 x 39	20 50

Pipe Fittings Reduced

Winnipeg.

Prices have been revised on malleable and cast iron fittings and the prices now in effect are as follows:

MALLEABLE IRON FITTINGS—

Class A—55% off list.

Class B and C—65% off list.

CAST IRON FITTINGS—

Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts— $12\frac{1}{2}\%$ off.

Boiler Elbows and Couplings—55%.

Reducers—20%.

Bushings—20%.

Plugs—20%.

Drainage Fittings—25 and 10%.

WROUGHT IRON NIPPLES—Close or Short—

4 in. and smaller—40%.

$4\frac{1}{2}$ in. and longer—30%.

WROUGHT IRON NIPPLES—Long—

4 in. and smaller—50%.

$4\frac{1}{2}$ in. and longer—40%.

RAILING FITTINGS—45%.

UNIONS—

Standard—35 and 5%.

Dart, $\frac{1}{4}$ to 2—15%.

Flanged, standard— $12\frac{1}{2}\%$.

Do., $\frac{1}{4}$, $2\frac{1}{2}$ to 4—5%.

Jefferson—15%.

FACTS ABOUT WARM AIR INSTALLATION

Continued from page 23

age of 25 per cent. In other words a loss of one-quarter of the efficiency of the pipe, which through back pressure greatly increases radiation of the pipe and casing into the cellar.

"Actual measurement of the fret work of an ordinary register proves that it occupies one-half of the rated size, therefore a 12-inch pipe should be provided with not less than a 14x16 register which has a free air area of 112 inches or one inch undersize, while good practice requires that the register should be 10 per cent. greater than the leader pipe.

"There are enormous quantities of pipeless furnaces being sold to farm homes. The sales in this direction has been so extensive that our government has taken cognizance of the subject and has published Farmers' Bulletin No. 1174 under date of December, 1920. This book treats in an elaborate manner both descriptive and illustrative of the proper use and installation of pipeless furnaces.

"I have reason to believe that the editor of the book is a member of the National Warm Air Heating and Ventilating Association. The book is an honest representation of facts, and if strictly followed will do much to promote proper installations."



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Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

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Victory Radiators

The water circulates through upper and lower Headers, and between two tubes—a smaller tube within a tube.

Uses 80 per cent. less water.

Saves one-third of coal. A smaller furnace keeps the water hotter.

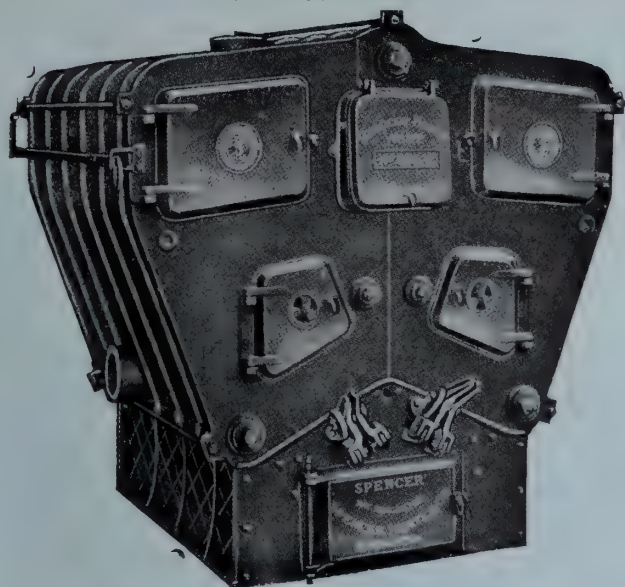
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Capacities 600 to 4,400 square feet*

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Because of the water-jacketed magazine and self-feeding features of the Spencer, FUEL IS BURNED THE NATURAL WAY thus eliminating waste, while giving a constant service to the delight of the owners.

There is inspiration in the attempt and satisfaction in the result of every Spencer sale and installation.

There is a size Spencer Steam or Water Boiler for every type of building.

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True Economy **Stack Heater**

The Stack Gas Water Heater will heat water in one minute.

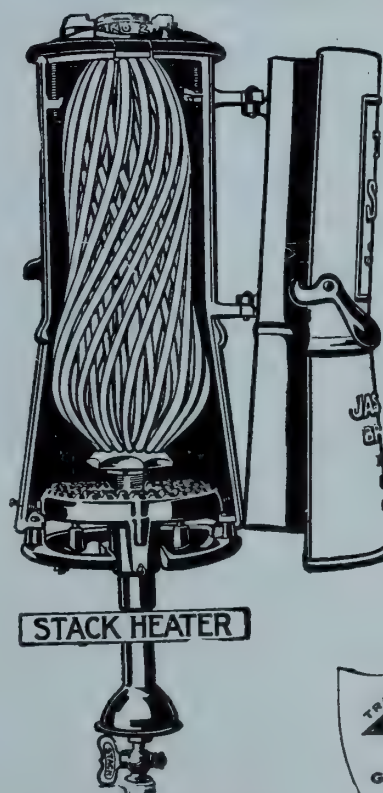
The almost perpendicular copper pipes in the Stack Heater offer no hindrance to the natural tendency of water to rise when heated.

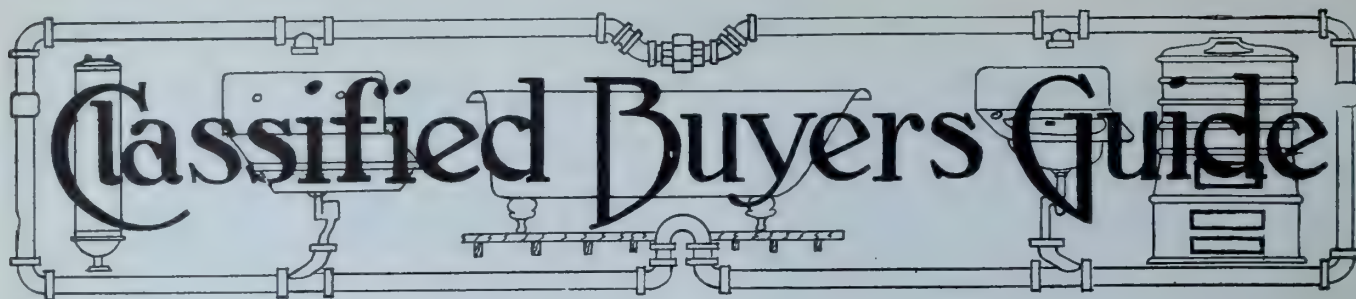
Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

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Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CEMENT

The Northwestern Chemical Co., Marietta, Ohio

CIRCULATORS

Atlas Engineering & Machine Co., Ltd., Toronto.

CLAMPS "C"

J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CONDENSATION UNITS

The Westco. Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS

The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHMETERS

Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Co., Toronto, Ont.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hotstream Heater Co., Cleveland, Ohio.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

GRATES FOR RANGES, FURNACES AND BOILERS

McIntyre & Taylor, Toronto.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.

HEATERS

The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

HUMIDIFYING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC

McIntyre & Taylor, Toronto.

KEROSENE WATER HEATERS

Hotstream Heater Co., Cleveland, Ohio.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

LEAD

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.

PIPE, BLACK AND GALVANIZED

Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

"Jewel Pipeless" Furnaces

The Finest One-Register Furnace on the Market

Right now we can see that the introduction of this furnace is going to make the year 1921 the banner year for our dealers, breaking all past sales records. This is only natural, because "Jewel Furnaces" have always been producers of large sales for our dealers, and the "Jewel Pipeless" contains the same high qualities that have made the name "Jewel" famous from coast to coast.

Your customers, when buying a heating apparatus, want mainly real Quality Heaters that will give good service for many years.

When you sell them a "Jewel" you sell them what they want.

All materials entering into the manufacture of "Jewel" Furnaces are highest grade and they are erected by skilled mechanics under the supervision of experts, which ensure the dealer and user entire satisfaction.



Safeguard your reputation as a furnace installer by selling your customer a "Jewel Pipeless," a furnace that is built on knowledge derived from experience.

Take another look at the illustration and ask yourself if the "Jewel Pipeless" is not the most durable, efficiently constructed, and neatest appearing furnace you have yet seen.

No other line offers you, Mr. Dealer, so great an opportunity to give to your customers the best that their money will buy.

Secure the Agency for Your Territory Now

Manufactured by

The Burrow, Stewart & Milne Co., Limited
Hamilton, Ontario

Branches: TORONTO WINNIPEG MONTREAL

PIPE JOINT COMPOUNDS

Wolverine Ltd., Toronto, Ont.
 James Morrison Brass Mfg. Co., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
 Empire Mfg. Co., Ltd., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Toronto Hardware Mfg. Co., Toronto.
 Warden King Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
 John Hall & Sons, Ltd., Brantford.
 A. B. Jardine & Co., Hespeler.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Porcelain Products Ltd., Toronto.

PUMPS

W. H. Cunningham & Co., Toronto, Ont.
 R. M. McDougall & Co., Ltd., Galt, Ont.
 The Westco Pumps Limited, Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

R. M. McDougall & Co., Ltd., Galt, Ont.
 The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
 Lord & Burnham Co., Ltd., Toronto.
 Steel & Radiation Ltd., Toronto.
 Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 The Canadian John Wood Mfg. Co., Toronto.
 Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

C. A. Dunham Co., Ltd., Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 The Simplex Mfg. Co., Chicago, Ill.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.
 Hoyt Metal Co., Toronto.

STEAM SPECIALTIES

C. A. Dunham Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 Kerr Engine Co., Walkerville, Ont.
 James Morrison Brass Mfg. Co., Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS

C. A. Dunham Co., Ltd., Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES

James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

Atlas Tank Works, Toronto.
 The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS (RUBBER)

W. H. Cunningham & Co., Toronto, Ont.

TESTING PLUGS

James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Trimont Mfg. Co., Roxbury, Mass.
 J. H. Williams & Co., Brooklyn, N.Y.

TORCHES

W. H. Cunningham & Co., Toronto, Ont.

UNIONS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
 R. MacDougall & Co., Ltd., Galt.
 James Morrison Brass Mfg. Co., Ltd., Toronto.
 Jenkins Bros., Ltd., Montreal, Que.
 The Kerr Engine Co., Ltd., Walkerville, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
 Empire Mfg. Co., London and Toronto.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 The Westco Pumps Limited, Toronto.

WASHING MACHINES

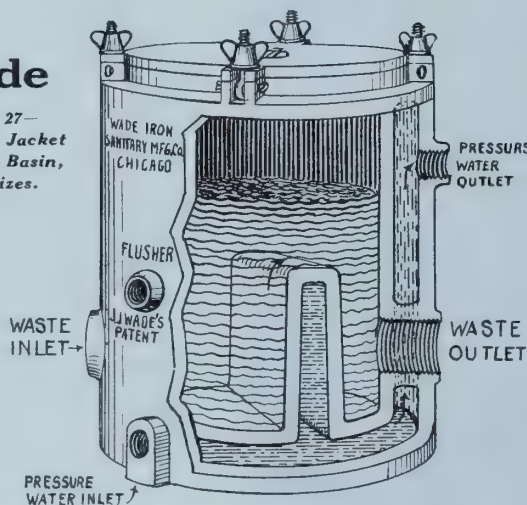
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS,

SOCKET AND CHAIN PIPE
 J. H. Williams & Co., Brooklyn, N.Y.

Wade

B Fig. 27—
 Water Jacket
 Grease Basin,
 Four Sizes.

**Water Jacket Grease Basin**

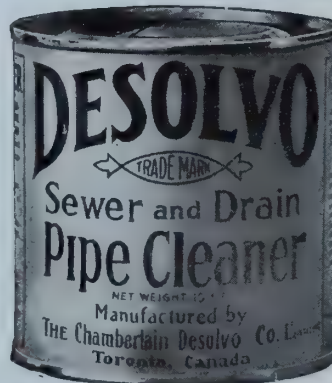
Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B."

Wade Iron Sanitary Mfg. Co.

551 W. Fulton Street, Chicago, Illinois



**Clears
 Clogged
 and Frozen
 Pipes**

That's Why It Sells

Desolvo thaws frozen pipes because when mixed with cold water it creates heat in addition to its own action. It clears clogged pipes easily and without the aggravating and expensive tearing up of house and grounds. It has many points of appeal to customers, pays a good profit and sells easily and often.

The Chamberlain Desolvo Co., Limited

109 Church St., Toronto

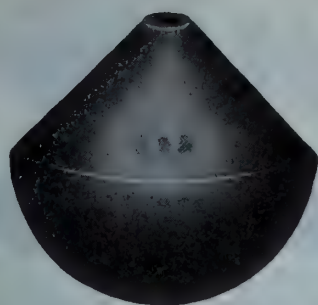
General Office: Pittsburg, Pa.

Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St., Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont. Western Canada Representatives: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.

Prompt Deliveries From Toronto Stock

Cone Top Tank Bulbs

A well-made, effectively-designed tank bulb. Its superior service in use reflects credit on your judgment and brings you other orders for installations. The material is first quality rubber. The top is heavily reinforced and the bottom is soft and pliable. The sizes available in stock at Toronto are: 2½", 2¾", 2¾" and 3".

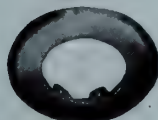


"B & C" Floor and Ceiling Plates

There are good sales for these because they are the most popular plates offered to the Canadian trade. They are well made of best, cold-rolled steel, heavily copper-plated, and finished in nickel-plate. A narrow pattern that is suitable for twin connections or one-pipe work. Sizes ¼" to 4" are in stock.



No. 15



No. 17

W. H. Cunningham & Co.

269 West Richmond St., Toronto, Canada

Exclusive Agents for Plumbing and Heating Specialties

"Ubel" Semi-Rotary Pump

A "Made-in-England," semi-rotary pump of efficient, reliable design. It is of sturdy, dependable construction and the prices are competitive. Sizes ¾" to 1½" available at Toronto.

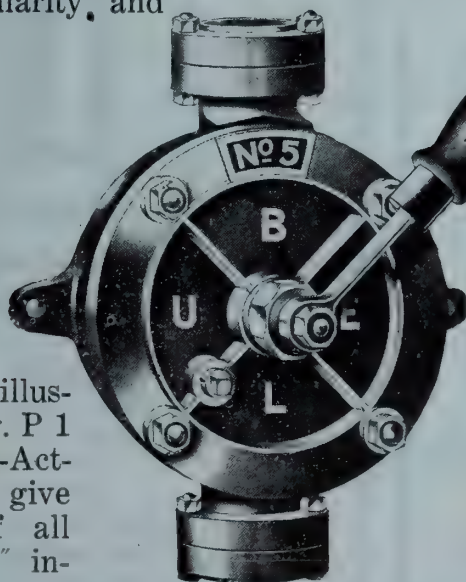


"Ubel"

"Made in England,"

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, account for the fact that they enjoy an ever-increasing popularity, and widespread demand.



Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

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HEAD OFFICE
EMPRESS
FOUNDRY



3,000 WORKERS
CORNBROOK
MANCHESTER
ENGLAND

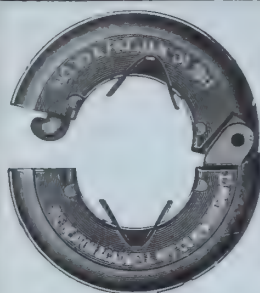
For the convenience of the Canadian Trade well assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Co.

269 West Richmond St.

Toronto, Ont.

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½" to 3" inclusive.

OPEN VIEW
NO. 10-A

THE CEILING PLATE

that's
better

TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL-HINGED PLATE, FLANGES $\frac{3}{4}$ " WIDE, HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



GEM NO. 4



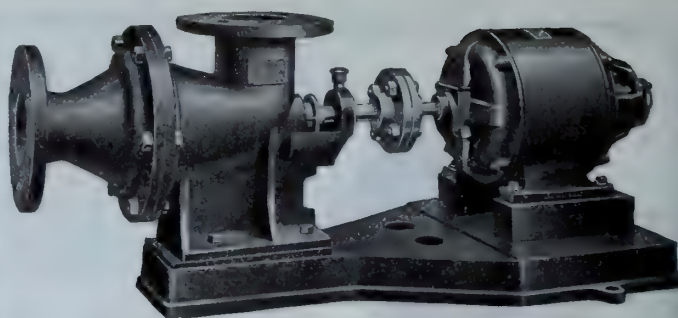
Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The Beaton & Cadwell Manufacturing Co.
New Britain, Conn.

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Positive Circulators for Hot Water Heating

A Gravity Hot Water Heating System is expensive. By using a Positive Circulator you are able to cut down on pipe sizes and radiation to reduce the cost considerably. Positive Circulators are more efficient under the conditions met with in hot water heating systems than the centrifugal pump. In addition the circulators are so designed that they afford large free areas to allow good gravity circulation when the motor is not in operation. When the motor is in operation the circulator forces the hot water from the boiler to the radiators with a loss of only a few degrees in temperature. They will ensure an even distribution of heat when the radiators are scattered and it is impossible to get gravity circulation.

Write us for more details and let us point out to you some special features of Positive Circulators.

**The Atlas Engineering
& Machine Co.**
23 River St., Toronto

Wolverine One-Piece Bath and Basin Supplies are Different



They are manufactured with the Wolverine Patented Flexible Connections—the only connection that is adjustable.

Tubing used is specially annealed and nickel-plated in 9-16 in. O. D. Tube and full $\frac{1}{2}$ in. Iron Pipe Sizes.

Tail Prices not required where Wolverine Supplies are used.

Wolverine Supplies may cost a few cents per pair more than the other kind but—just think—you gain this difference and more in time and material saved and they sure have a finish that is a credit to any Bath Room.

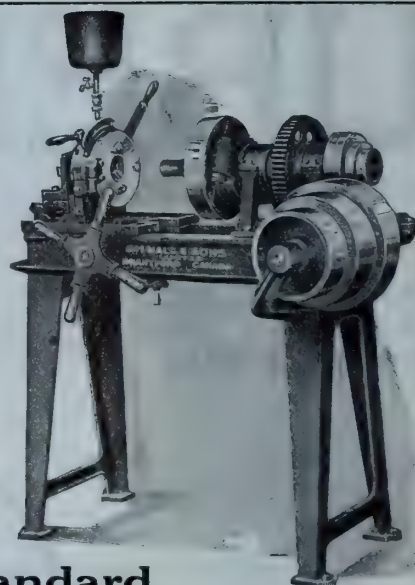
Better order to-day.

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—LIMITED—**

76 NELSON ST.

TORONTO

Large Spindle and Spindle Bearings. Rack and Gear Machine Cut. Specially constructed Reservoir and Filterer. All Gears amply protected. Large Oil Trough. Compact Control. Crank furnished for Hand Power. Power Pump supplied extra. Special Overflow Valve extra.



Hall Standard Improved Pipe Machine

is of simple construction, quick and easy of operation, and has been built on the Hall standard of workmanship and service.

Let us mail you full information regarding this money-saver, together with catalog covering our complete line of Power Pipe Threading Machinery.

Delivery from stock.

**Williams Tool Corporation
of Canada, Limited**
Brantford, Canada



WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{8}$ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

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Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

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ANNUAL CONVENTION

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L'Association des Constructeurs de Quebec

"The Spectre"

By Guy Morton

"LONGREEN was not a quibbler.

"I am sorry, Grimley' — he came straight to the point—'but we are compelled to dispend with your services at the end of the month. Turner's for the past six months has been having a terrible pull. We got overstocked on the rising market and now, with the market falling every day and getting more and more into the customers' hands, we have to retrench or crash. We have chosen to retrench. Every stick of decorative employment is being cut out of the store. . . ."

What Spectre? The Spectre of Unemployment—a spectre which all too many have encountered during the past few months. If you have not personally encountered this spectre, so graphically described in its causes and consequences by Guy Morton, you may count yourself amongst the fortunate, but there will be no doubt as to your interest in his story. If you have encountered it, nothing can stop you, once you start this story, from reading it to its unusual and constructive conclusion.

It is a great piece of fiction, told by the same author who wrote "Personality Plus" in the March 15th MACLEAN'S.

Review of Reviews

Social Revolution in England
Sir Philip Gibbs
Can Germany Pay?...Stephane Lauzanne
Lighter Side of Diplomacy
Maurice Francis Egan

The African Lung Fish
Scientific American Monthly
Shock Cures Shock.....A Psycho-Analyst
Ten and a Half Dollar Novels
George Moore
Soil Subsidence in England....Daily Mail

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"CANADA'S NATIONAL MAGAZINE"

Ten Others

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Life and Love Return—

By Arthur Heming

This is the seventh installment in Mr. Heming's wonderful account of life in our northern forests and pictures the fascination of real romance in the wilds.

"Have Faith in Our Nationals"—

By Agnes C. Laut

There is no use always knocking, says Miss Laut. By a constructive policy of immigration and settlement, some of these deficits can be vastly reduced.

"Conversation vs. Closure"—

By J. K. Munro

Premier Meighen is struggling against great odds to carry through some constructive legislation. According to Mr. Munro, they are really not getting anything done at Ottawa—and he tells how they do it in his masterly, pungent, pithy, witty fashion.

"She Wasn't a 'Type' So She Became a Directress"—

By Edith M. Cuppage

The story of a B.C. woman who wanted to get into the movies—and got there, despite everything, in the administrative side.

"Heads Million Dollar Corporation"—

By Dorothy G. Bell

The story of a Canadian girl who went to the States with an idea that she might become a dancer, but has made for herself a niche as head of a million dollar financial corporation.

"Our Own Mediterranean"—

By Elton Johnson

What's what at the present time in regard to the movement which is on foot to make ocean ports of our Great Lake ports.

"Making Good on Four Ambitions"—

By Sinclair Laird

The story of W. S. Bullock, a member of the Provincial Legislature of Quebec Province, who did not know his multiplication table at 19 and is now a leading educationalist.

"Pawned"—

By Frank L. Packard

This masterly story of a triple regeneration is drawing swiftly to its conclusion; John Bruce and Crang meet again at death-grips.

"The Gates of Tien T'ze"—

By Leslie Howard Gordon

The first "gate" is entitled "The Gate of Wu" and starts off this thrilling, absorbing, melodramatic story with several full pages of gripping adventure.

"The Cage of Iron"—

By William Merriman Rouse

A story of an old man who thought he could take into his own hands the vengeance which the Creator intended should be left for Himself.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

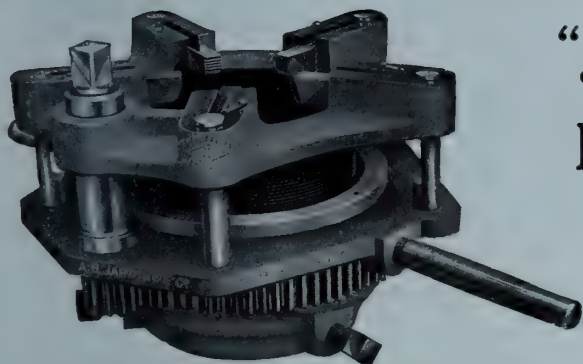


Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO



"Toledo" Geared Adjustable Threading Tool.
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

"Made in Canada"

Sole makers of "Jardine" Pipe-Threading Tools.
Sole Licensees to manufacture and sell Toledo
Pipe-Threading Tools in Canada.

Agents, Winnipeg and West—Stanley Brock, Ltd.,
Winnipeg, Man.

Brockville and East—J. R. Devereux, 358 Beaver
Hall Square, Montreal.

Belleville and West—W. H. Cunningham & Co.,
269 Richmond St. West, Toronto, Ont.

"JARDINE" and "TOLEDO" Pipe-Threading Tools

Interesting Features

The Jardine and Toledo have no cams or gimcracks to get out of order, and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

A. B. Jardine & Co.
Limited
Hespeler -- Ontario

We have the largest stock of pipe-threading tools in Canada and can make prompt deliveries. Send this coupon for catalogue and literature that will interest you. Do it now.

Name _____

Address _____

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The Most Helpful Equipment in Business

To-day modern business is transacted with the aid of numerous equipment, counters and display windows and cash registers.

We can hardly get along without them — each has its saving in speeding up of daily sales, and yearly turnovers.

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143 University Avenue,

Toronto, Ont.

M. & T. COILS

EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited

TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street

No Home Modern Without Gas Service

Complete Gas Service is as indispensable to the modern home as modern plumbing.

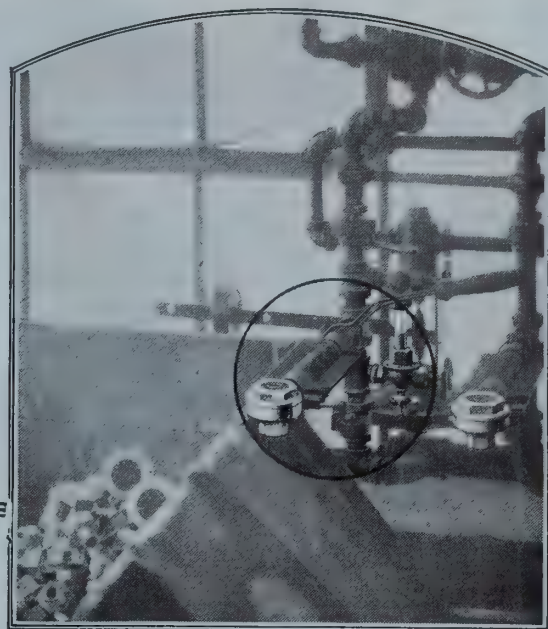
If you are building a new home or are planning to build, don't overlook complete gas service equipment. Without it you will never know the meaning of real convenience.

Consult us for details.

Phone Sales Department, Adelaide 2180
for Piping Specifications.

Showrooms, 19 Toronto St.—2nd Floor

The Consumers' Gas Company of Toronto



The 2-part TRAP— individually tested

When the Testing Stand at the factory puts the O.K. on a trap, that trap is ready for business. Installed on a radiator, it will stop the steam and pass the air and water. It will keep on doing this for—well, we don't know for how many years.

Many of the original traps after seventeen years of continuous service are still operating satisfactorily and with promise of working indefinitely.

Mechanically, the Dunham Trap is better today than it ever was. The principle of operation is the same today as when the trap entered the Patent Office. Of this fact, we are rather proud. To you, it will perhaps indicate that Dunham Standards are stable, and of known value, and can be depended upon to serve you.

We believe that you can profitably co-operate with Dunham Service. May we explain?

Dunham Specialties

Packless Radiator Valves	Drip Traps	Suction Strainers
Vacuum Pump Governors	Blast Traps	Air Vents
Reducing Pressure Valves	Air Line Valves	Return Traps
Radiator Traps	Oil Separators	Check Dampers
	Damper Regulators	

The DUNHAM
HEATING SERVICE
Made in Canada

C. A. DUNHAM CO., Limited, Toronto, Ont.
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HOYT

WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL

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Williams' Screw Wrenches

Will stand an extraordinary amount of abuse. They are rugged, sturdy tools with clean cut, accurately formed jaws and hardened working parts. Easy to adjust, well balanced, with ample leverage for difficult work, even when the jaw is opened to maximum capacity.

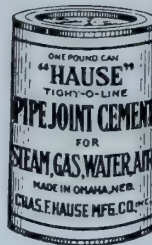
Three models—seven sizes—6 to 21 inches. At your dealer's. Screw Wrench Booklet on request.

**J. H. WILLIAMS & CO.
LIMITED**

"The Wrench People"

Formerly Canadian Division of
The Whitman & Barnes Mfg. Co.

77 Thorold Road, St. Catharines, Ontario



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans
and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

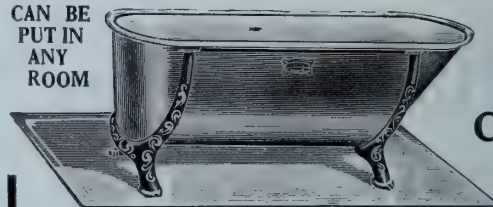
Made in Omaha, Neb., U.S.A.

Canadian Distributors.

Empire Manufacturing Co., Ltd., London and Toronto

The London Engine Supplies Co., London

CAN BE
PUT IN
ANY
ROOM



**PROFITS
IN
COUNTRY
TRADE**

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal, Quebec and Eastern Representative.

Galvanized and Black Sheet Canada Plate

BRASS AND COPPER TUBES, RODS, SHEETS

Lists on Request. Shipments from Toronto Stock.

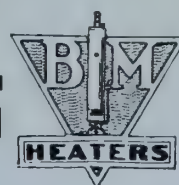
ONTARIO METAL PRODUCTS CO., LIMITED

PHONE PARKDALE 5200

TORONTO, ONT.

INDEX TO ADVERTISERS

Allison, K. B.	8-9
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Atlas Engineering & Machine Co., Ltd.	44
Atlas Tank Works	52
Bastian Morley, Ltd.	51
Beaton & Cadwell	44
Burrow, Stewart & Milne Co., Ltd.	41
Campbell & Co., P.	52
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products.	45
Chamberlain Desolvo Co.	42
Consumers' Gas Co., Ltd.	49
Crane Limited	8
Cunningham & Co., W. H.	43
Dennis Wire & Iron Works Co., Ltd.	5
Dominion Sheet Metal Corp., Ltd.	1
Dunham Company, Limited, C. A.	49
Empire Brass Mfg. Co.	Outside front cover
Fittings, Ltd.	52
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	52
Hall Zryd Foundry Company, Limited. .	3
Hause Mfg. Co., Chas. F.	50
Hoyt Metal Co.	50
International Malleable Iron Co.	37
Jardine & Co., A. B.	47
Jenkins Bros., Limited	7
Katie Foundry	52
Kerr Eng. Co., Ltd.	38
Marks & Co.	52
McIntyre & Taylor, Ltd.	49
Montreal General Tool Co.	38
Morrison Brass Mfg. Co., Ltd., James.	39
Mueller Mfg. Co., Limited, H.	35
Ontario Metal Products	50
Port Hope Sanitary Mfg. Co., Ltd.	26-27
Spencer Heater Co. of Canada, Ltd.	39
St. Louis Technical Institute	45
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	50
United Brass Foundry & Engineers.	43
Wade Iron & Sanitary Mfg. Co.	42
Warden-King, Limited	42
Westco Pumps, Ltd.	4
Williams & Co., J. H.	50
Williams Tool Corp.	44
Wolverine, Ltd.	44



B-M Gas Water Heaters are made in Canada



Buy Canadian-made goods and refuse to buy any other, even to the extent of doing without—is our loyal duty now.

This applies — whether it's food, luxuries — or whether it's gas water heaters.

B-M Heaters are Canadian-made Gas Water Heaters with a reputation for high heating-efficiency and low operating-cost. Combining range boiler and heater in one they are installed with fewer connections, more easily and at a lower cost to your customer.

They save the plumber's time, at the same time give him a generous profit. Investigate B-M Heaters. Send for literature and prices.

BASTIAN-MORLEY LIMITED

World's Foremost Heater Builders
Hanson St. and Hillingdon Ave.
TORONTO, CANADA



Tapped Closet Bend

Easier to attach
More permanent
Cost less



WE MAKE TANKS

FOR ALL PURPOSES

Air Receivers
 Boilers (Hot Water)
 Storage Tanks
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All Kinds of
 Steel Plate Work
 Smoke Stacks
 etc.

WRITE US FOR PRICES

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Works and Office:
 105 Ritchie Ave.
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WANTED Manufacturer or Distributor

for a high grade line of gas and oil burners for the Canadian trade. A tremendous and profitable business can be developed upon this line. We can supply patents, patterns, drawings, tools, etc. This business can be established for about \$25,000 capital. For complete information write The Cleveland Gas Burner & Appliance Company, Cleveland, Ohio.

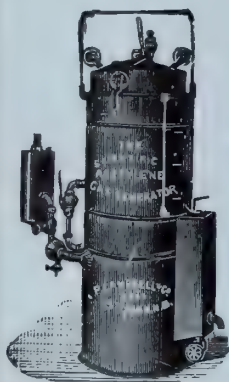
Fittings Limited



*Manufacturers of
 Malleable and Cast
 Iron Pipe Fittings*

Oshawa

PRIVATE LIGHTING SYSTEMS



Now is the time. You are the man—to sell and install "Scientific" acetylene lighting systems in your locality. Rural Residences, Churches, Stores, Clubs and Hotels are seeking modern lighting outfits and you can reap a good profit in supplying and fitting the gas piping and fixtures as well as the generator.

Hundreds in use in the best buildings upwards 20 years. No delicate and expensive parts that require renewing as in other systems, so that you can give a better guarantee than any others.

Send for circular and go after this business. We will assist you.

P. Campbell & Co.
Manufacturers
 St. John, N.B.

THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
 Soap Dishes
 Paper Holders
 Glass Shelves
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Plumbing and Heating Supplies

Wholesale Only

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FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

FOR SALE—PLUMBING, HEATING AND Sheet Metal Business, in one of the most prosperous cities of Western Canada. Has been established eight years and has good connection in city and country. This is a splendid opportunity for one or more live wires. With stock, tools and property, or sell stock and tools and lease the property. For particulars apply Box 936, Sanitary Engineer.

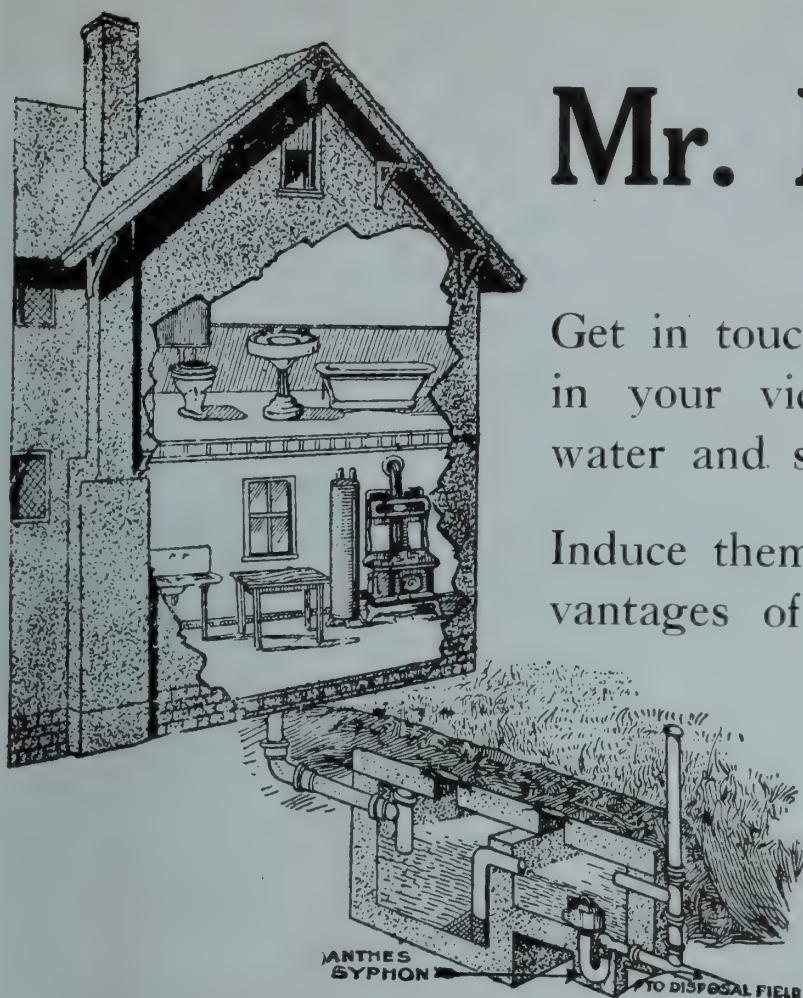
Mr. Plumber

Get in touch with those farmers in your vicinity who have no water and sewage installations.

Induce them to consider the advantages of running water and modern conveniences.

Science has demonstrated that isolated dwellings can be made just as sanitary

as communities, and the "Anthes" Syphon does for the farm what the trunk sewer does for the city.



Anthes Syphons are made in one piece, without seam or joint, and, operating on purely natural laws, with no moving parts to get out of order, they give great satisfaction in use.

ANTHES FOUNDRY LIMITED

Manufacturers Cast Iron Soil Pipe and Fittings

JEFFERSON AVE.
TORONTO

SASKATCHEWAN AVE.
WINNIPEG

PERFECTO

BRASS GOODS

None But the Makers
of Perfecto Brass
Goods Dare Give the
Perfecto "Two-to-One"
Guarantee



THE Perfecto guarantee is not only a protection for the plumber in case of dissatisfaction—it is a proof of our faith in Perfecto Brass Goods. And the most significant feature of the guarantee is not that we stand ready to make it good—that, of course, is a fact—but that *we do not have occasion to make it good.*

"If any genuine Perfecto article should prove defective in workmanship or material, we will willingly replace it with *two* perfect articles." We couldn't give a guarantee like that if Perfecto Brass Goods were anything short of perfect. Yet that is the guarantee that goes with every Perfecto article.

So that when you instal Perfecto Brass Goods there can be no question about the customer's being absolutely satisfied, and a constant, living testimonial for yourself.

GALT BRASS COMPANY, LTD.

GALT - CANADA

Makers of the Famous VITRO Tanks.

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, MAY 15, 1921

No. 10



*Known
From Coast to Coast*



Catalogue No.
A-502

The double compression bath cock shown in the engraving is one of the great variety of Empire products used extensively throughout the Dominion.

The heavy nickel finish will last for years. Made of high quality material and handsome in design, it gives complete satisfaction.

Jobbers everywhere handle the Empire line of plumbing supplies and sanitary fixtures.

All Goods Tested Before Shipping.

Empire Brass Mfg. Co., Ltd.

London

-
Canada

Toronto

*"If it's an Empire Product
you know it's right"*

A Beaver Brand Pedestal is a Lavatory Fixture Worth While



A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, Nova Scotia

AGENCIES :

ONTARIO :

Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST :

E. B. Plewes, 129 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 311

YE GRAND BLUFF!

We had just said to a friend: "Talk about Made-in-Canada, why we never hear a sound these days from a lot of jobbers and manufacturers who were mighty glad of our service and prices when things were different.

There's no such thing as APPRECIATION"—and just then a Prince of the realm phoned an order for a car of "PREMIER" GALVANIZED STEEL SHEETS, and a wire came in ordering another car, and the mail man brought an order for a third car!

It looks like a beautiful day to us now, and we're hoping the weather has changed to

MADE-IN-CANADA.

TINKER TOM.



Quality

is an essential in the upbuilding of any business with permanence. Quality is one of the three legs of the Tripod of Business. This Tripod is as necessary to the stable support of business as is the Famous Tripod of Life—the heart, lungs and brain—to human existence.

Efficiency

represents the second leg of the business tripod. Without efficiency there can be no success, because efficiency signifies a satisfactory relation between the result obtained and the effort invested. We burn so much coal to obtain a certain horsepower in steam. We invest a given sum of money in business; if the business is efficient it produces a satisfactory return.

Service

is the positive complement of Quality and Efficiency, without which they could no more stand alone than could a three-legged stool with one leg lacking. The amount of our service to society at large is practically the measure of our receipts from the world—especially in business.

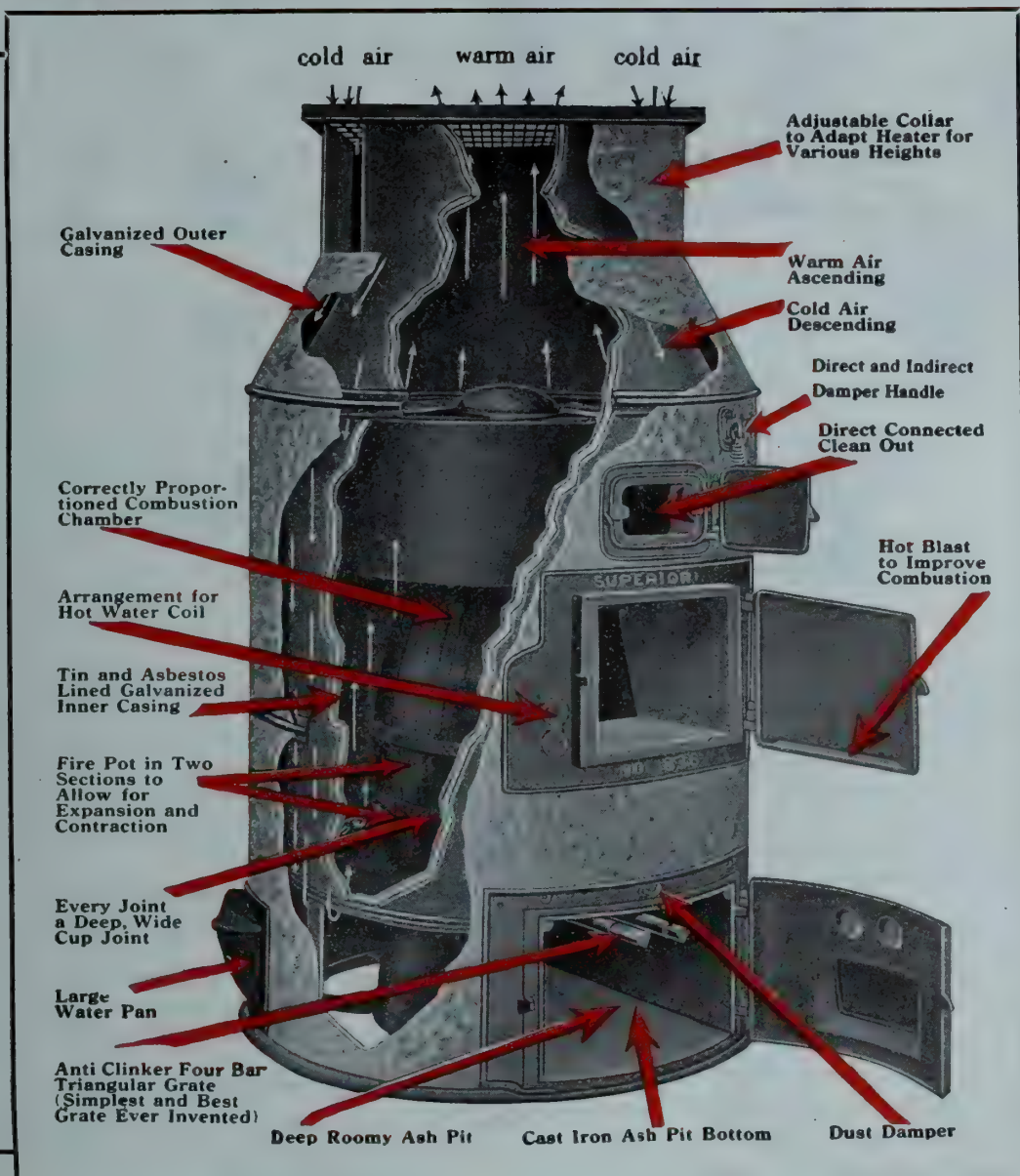
Canadian Brass Company

Limited

Galt - Toronto

PILOT

Superior Pipeless Furnace



Its Advantages Secure Present and Future Profits

When you specify, or install, Pilot Pipeless Furnaces, you are not only giving your customer good service and a square deal, but building good-will and future business.

Pilot Superior Pipeless Furnaces cost less to install; they do not block up the cellar with a lot of costly pipes; no remodelling of the house is needed, merely one hole cut in the floor.

In this effective, pipeless system, the heated

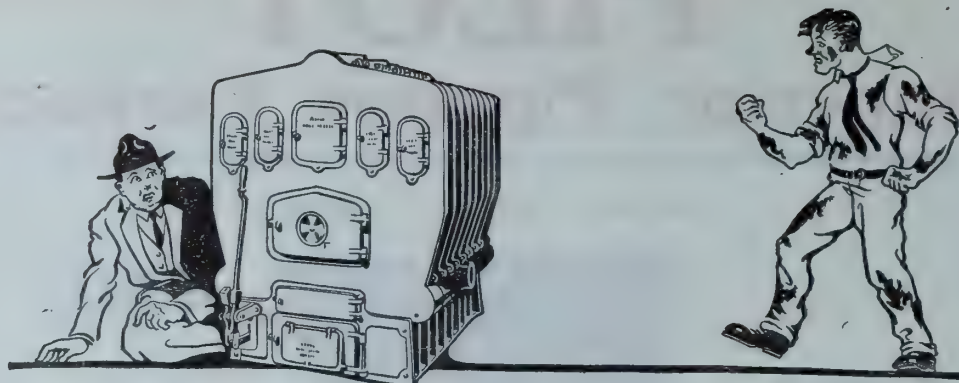
air leaves the central portion of the one large register, circulates through the house, because lighter than cold air, and, having warmed the rooms, cools and returns to the lower levels of the house. There it enters the outer portion of the register into an exterior casing of the furnace. It is then reheated by passing over the hot castings of the furnace. Ask for literature, to-day. This Pipeless Furnace is going to pay you!

Hall-Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces.

Hespeler, Ontario

Western Branch: Post Office Box 687, Winnipeg, Manitoba



— A Boiler Bolshevist — How It Started And Where It Ended

By Booster Biny

The day after Bill Bunday dropped that length of soil pipe on his favorite corn, I dropped in his store to see if the sulphur had cleared out of the air yet. There was still a sniff or two left.

But no sooner had it all finally gone, than in came a chap and dumped out a couple of hundred cubic feet more.

Furthermore, he was grimy with soot and shaking his fist like he was sure enough hunting for somebody. I slid around behind one of our boilers and, from the improvised breast works, asked him where he got the Bolshevik bomb stuff.

Let's pass over the painful particulars and the words of emphasis.

The whole trouble seemed to be that he

had been cleaning the soot out of his boiler.

One of those boilers that has a way of hiding the clean-out doors in all kinds of inaccessible, cute little places. He was there to take it out of Billy Bunday's hide for selling him such a boiler.

To make a longer story still shorter; Bill has got to take out a boiler and put in a Burnham.

Come closer while I whisper it, the name of the other one.

One with the clean-out doors *all* on the *front*.

He is sending him a Burnham.

Next time, want a word with you about the things that most folk know, being the things that most folks don't know.



ROYAL BANK BLDG.
TORONTO

Lord & Burnham Co. Limited
of Canada

Boiler Department

Factory:
St. Catharines, Ontario

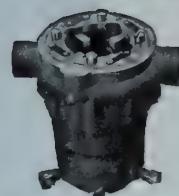
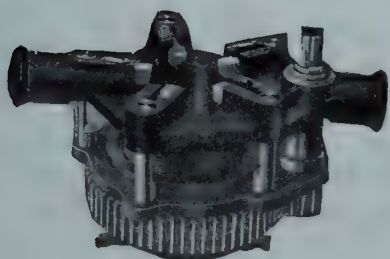


JARDINE

"JARDINE" and "TOLEDO" Pipe-Threading Tools

No Complicated Parts to Get Out of Order

Jardine and Toledo Pipe Threading Tools have no cams or gimcracks to get out of order, and the dies only cut with the mouth of the cutter. The dies open out as the tool advances on the thread, so as to make the proper taper. This means that there is no friction on the pipe and every ounce of strength is used in making the cut, saving time and labor. These are but a few of the valuable features of these tools.



The A. B. Jardine Company, Limited, have much of interest to the Sanitary Engineers of Canada. An examination of our catalogue will point new ways to profit for you.

We are the sole makers of "Jardine" Pipe Threading Tools and sole licensees to make and sell the "Toledo" Machine.

*Tear off the Coupon and
Send It To-day!*

A. B. Jardine & Co.
Limited
Hespeler — Ontario

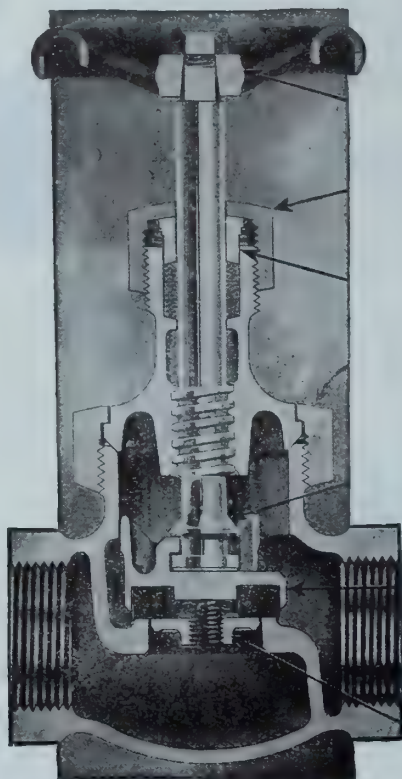
Toronto Agent :
W. H. Cunningham & Co.
269 Richmond St., W., Toronto

THIS COUPON WILL BRING YOU ALL THE INFORMATION

Name
Address
City
Send for Catalogue.
A. B. JARDINE & CO., LTD
Dept.

SEVEN FEATURES OF THE CRANE NUMBER 7

for use in plants where continuous service is required and where discs must be changed quickly without injury to the valve.



1—Easily removable malleable iron, non-heat wheel

2—Malleable iron nut

3—Brass gland

4—Malleable iron nut

5—May be packed under pressure when valve is wide open

6—Removable disc holder for quick change

7—Removable nut for changing disc

Made in sizes $\frac{1}{4}$ -to 2-inch; for 150 pounds steam working pressure; discs for steam, air and water supplied as ordered. Body, Bonnet, Stem, Disc Holder, Gland, made of Brass.

*Fully described in Circular No. 1
which will be sent upon request.*

**Manufacturers of Valves, Fittings and Piping Equipment
and Distributors of Pipe, Plumbing and Heating Supplies.**

**CRANE
LIMITED**

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1280 ST PATRICK STREET
MONTREAL

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO,
WINNIPEG, REGINA, CALGARY,
VANCOUVER.

Sales Offices:
QUEBEC, SHERBROOKE,
HAMILTON, VICTORIA.

**CRANE-BENNETT
Limited**

Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM.

*Electric
Weld*

RANGE BOILERS

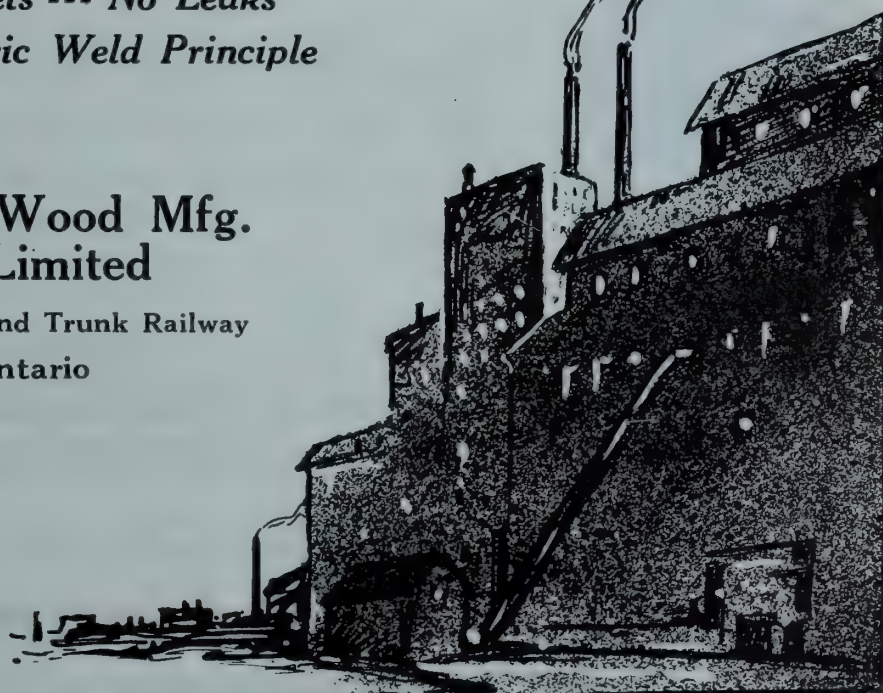
Standard Size for New Work or Replacement

**Quality
Service
Price**

*No Rivets --- No Leaks
The Electric Weld Principle*

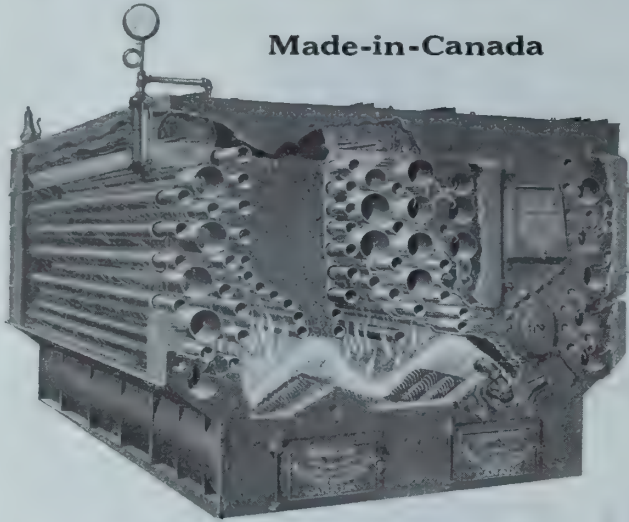
**Canadian John Wood Mfg.
Company, Limited**

Hillingdon Ave. and Grand Trunk Railway
Toronto, Ontario



EFFICIENCY FACTS versus BIASED OPINION

Made-in-Canada



SPENCER WATER-TUBE STEAM BOILER
Capacities 1,000 to 10,000 sq. ft.

MODERN boiler construction versus antiquated types, IS positively demonstrated in the construction and operation of the SPENCER Self-feeding Boiler.

It is the only type of boiler on the market that will successfully burn all of the various sizes and grades of fuel in a positively smokeless manner, with minimum attention and the greatest economy.

Every owner of a Spencer Boiler is privileged to purchase the lowest priced fuel in his particular district. These facts were conclusively proven during the memorable months in which the fuel rationing ordinance was in vogue, especially in Eastern Canada. REMEMBER, the name of the Spencer Self-feeding Boiler stands for the best heating service known at this age, either for Hot Water or Steam in any type of building.

A few installations will drive home to you these **EFFICIENCY** facts.

LET US HELP YOU

SPENCER HEATER COMPANY OF CANADA, Limited

71 St. James Street
Montreal

68 Adelaide Street East
TORONTO

185 Portage Ave. E.
Winnipeg, Man.

PLANT

PENETANG, ONT.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

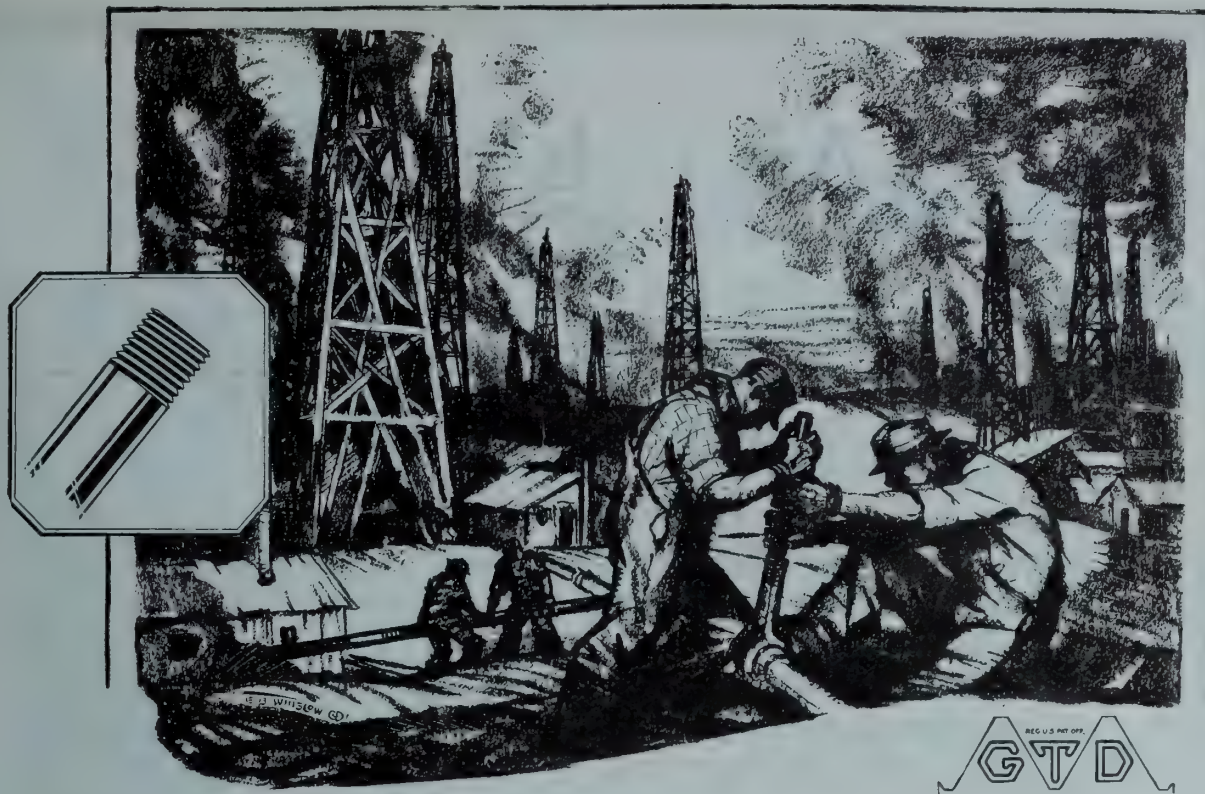


Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO



Fortunes that are made and lost

OIL! Men grow rich in an hour. Stocks rise and fall like meteors. A mighty industry yet in the making. Giant pumps that pull from the very bowels of the earth the juice that drives the tractor or lights the city, or lubricates its mill-wheels, or heats a thousand homes.

To most men, that's the oil country. But to you, this scene has still another meaning. Look past the romance of it all and see the thousands and thousands of miles of just plain pipe!

Think of the elbows, joints, unions, all worked into a compact, serviceable system ready for any strain put upon it.

That system made possible the modern oil-well, a thing for the plumbing and steam-fitting trade to be proud of. The tools that cut those threads

are not the old fashioned, experiments of a decade ago but the same quick-acting sure-working servants that you find in any good workman's kit today.

GTD has built a line of pipe tools that are earning the praises of thousands of users.

The GTD Receding Pipe Threader will make it possible to thread pipe three times as fast—the "Trio" Die Stock will net you in dollars, twice as much work as you have been getting, and the GTD Pipe Wrench will give you longer service and better wear than any tool you ever held in your hand. These are not extravagant claims—but merely plain statements of the facts which we believe every man on a big plumbing job today ought to know and make use of.

GTD
Corp.,
of Canada,
Limited
Galt, Ont.

Send your circulars describing the GTD Receder and other tools. Also put our firm on your mailing list to receive information about these tools whenever issued.

Successors to:
Wells Bros. Co. of Canada, Limited
Galt, Ontario

Name.....
Firm.....
Address.....

S.E. 405

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, MAY 15, 1921

No. 10

CONTENTS

Tinsmiths No Longer "Manufacturers"	13
Presents Report of Ottawa Conference	14
Back Street Workshop Days Are Gone	15
Combination Heating Systems	17
Tests to Determine Inside Casings of Pipeless Warm Air Heaters.....	18
Simplified Bookkeeping for Plumbers.....	19
Practical Sheet Metal Work	21
Editorial Comment	22
Sewage Disposal for Small Communities	23
News from Here and There	24-25
Contracts Awarded, Tenders Wanted, etc.	28
New Plumbing Goods	29
Current Market Quotations—Montreal, Toronto, Winnipeg.....	30-36

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Sanitary Engineer

Plumber and Steamfitter of Canada

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Tinsmiths No Longer "Manufacturers"

Budget Speech of Minister of Finance Announcing Extension of Sales Tax Principle Also Removes Tinsmiths From Category of Manufacturers—Luxury Tax and Business Profits Tax Abolished—Changes in Value for Duty on Imported Goods

IT is a matter of considerable gratification to certain retail merchants, including tinsmiths, that the Finance Minister in presenting the annual budget has seen fit to abolish the regulation of the Department of Inland Revenue and Customs requiring certain retailers to take out a manufacturer's license and collect a two per cent. tax. It is difficult to think of any government regulation that was more unpopular and unjust and therefore the reform gives the retailers who were affected cause for being joyful. It is general knowledge that the test case was being fought out in the courts and that a judgment was being anxiously awaited, but of course any judgment rendered now must be declared null and void, according to authorities who have examined the matter closely.

The section of the budget which relieves tinsmiths from responsibility as manufacturers is as follows: "The excise taxes as specified are not to be payable on goods exported or on goods or sales of goods made to the order of each individual customer by a business which sells exclusively by retail, under regulations by the Minister of Customs and Inland Revenue, who shall be sole judge as to the classification of a business; and a drawback may be granted of 99 per cent. of the said taxes paid on materials used, wrought into or attached to articles exported."

Sales Tax Principle Extended

In proposing new taxation to raise revenue the Minister of Finance has extended the principle of the sales tax, whereby after May 10 the tax upon sales by manufacturers in Canada to wholesalers and by wholesalers to retailers will be 1½ per cent. on each transaction instead of the former 1 per cent. The tax on sales by manufacturers or wholesalers directly to consumers will be 3 per cent. In the case of importations by wholesalers the tax will be 2½ per cent. of the duty paid value of the goods, but in case of importations by retailers or

TAX AND TARIFF CHANGES IN BRIEF

Business Profits Tax abolished.

Luxury Taxes Abolished.

50 per cent. increase in general sales tax collected by manufacturers and wholesalers.

Increase in tax on goods imported by wholesalers and retailers.

Customs valuation stabilized by changing value of goods for duty figuring exchange when adverse to Canada and not allowing depreciated currency to appear on invoices below 50 per cent. of normal value.

Imported goods to be marked with name of country of origin.

Plan to strengthen anti-dumping law.

Tinsmiths relieved from manufacturers' license.

consumers the tax will be 4 per cent. New rates are effective on all goods imported or taken out of warehouse for consumption and to goods imported for which no entry for consumption was made before May 10th.

The luxury tax and the business profits war tax have both been abolished.

Legislation also provides for strengthening the anti-dumping law in Canada and for stabilizing customs valuation by figuring the exchange where it is adverse to Canada and by providing that the depreciated currency of certain other countries cannot go below fifty per cent. Imported goods are to be marked, where possible, with the name of the country of origin, in both English and French.

Commenting upon the extension of the sales tax to raise necessary revenue the Minister of Finance stated that the imposition of a general turnover tax had been advocated by many organizations, but that it had been found that many retailers kept no books and that the cost of collection of such a tax would be unduly great.

May Not Be Passed On to the Consumer

No provision is made that the sales

tax must be shown separately on invoices and it is contended that the increase will not necessarily be passed on in full to the consumer. It is thought in some quarters that competition will lead to the absorption of at least a portion of the new sales taxes into production costs and prevent the passing of the full amount of the taxation to the public.

No General Tariff Revision

No general revision of the tariff schedules is proposed at this time, partly due to the fact that settled tariff legislation in the United States has not been decided upon. The changes in tariff schedules are confined to adjustments for the purpose of carrying out the terms of the trade agreement with the British West Indian colonies and to certain other adjustments made necessary by the repeal of the few remaining luxury taxes.

Three important amendments to the Customs Tariff Act are included in legislation introduced. These are designed to protect Canadian interests against unfair competition from foreign countries. In proposing them the Minister of Finance stated that much of the un-

employment in Canada resulted from the importation into Canada of goods at prices below the cost of production. He therefore proposed to enact that goods be valued for duty at a figure in no case lower than the wholesale price at the time in the country of origin and that the value for duty of new or unused goods should in no case be less than the actual cost of production of similar goods at date of shipment direct to Canada, plus a reasonable profit thereon.

Consider State of Currency in Country of Origin

Another amendment provides for taking cognizance in valuation of goods for duty of the state of the currency of the country of origin. The law as it stands provides for valuation in the currency of the country of export. Under a customs ruling this currency has been accepted on the basis of existing rates of exchange. The amendment provides that "in computing the value for duty of the currency of an invoice, no reduction shall be allowed in excess of 50 per cent. of the value of the standard or proclaimed currency of the country from whence the goods are invoiced to Canada." It also enacts that "in respect of goods shipped to Canada from a country where the rate of exchange is adverse to Canada, the value for duty of the currency of the invoice shall be computed at the rate of exchange existing between such country and Canada at the date of the shipment of the goods.

To illustrate these points take for example the German mark, the standard value of which is approximately 24 cents and which has depreciated greatly. By the suggested amendment the mark can never be accepted in the valuation of an invoice for duty at less than 12 cents (50 per cent. of its proclaimed value). On the other hand if an article selling in the United States at \$10 is imported into Canada at a time when the rate of exchange is 10 per cent., the valuation of the article for the purpose of collecting Canadian customs duties will be \$11. If the rate of duty is 30 per cent. the revenue collected on that article will be \$3.30 under the new legislation compared with \$3 under the former basis of value for duty.

Mark All Imported Goods

The third amendment calls for the marking of all goods imported into Canada in English and French, to indicate the country of origin. This provision is to enable Canadian consumers to know the source of the goods purchased and is in accord with the wishes of manufacturers who have complained that goods have been sold as British, for example, when they were never manufactured in the United Kingdom. This latter amendment is not effective until September 1 next, after which unmarked goods will be liable to an additional 10 per cent. ad valorem duty as a penalty and a fine of \$1,000 or imprisonment for persons violating the legislation with

Presents Report of Ottawa Conference

Honest Endeavors to Facilitate Building Operations—Development of Apprenticeship Plan—Revision of Wage Scale Advocated— Report of Montreal Secretary

At the monthly meeting of the Master Plumbers' Association, the secretary, David K. Trotter, presented a report on the business transacted at the Builders' Conference held in Ottawa last week, under the chairmanship of the Minister of Labor. He indicated in detail the composition of the employers' party and that of the employees. With regard to the latter he pointed out that all individuals were intimately associated with international labor unions, while on the employers' side were a number who were not employers of building labor at all, others were engaged in the industries which were only remotely connected with the building industry. The practical results, he said, of the conference might be briefly indicated as follows. First, that both sides came together in an honest endeavor to facilitate building operations throughout the Dominion. Second, an apprenticeship plan was developed for the building trade which, while it might not be adopted in full force, might

nevertheless serve as a guide to those trades who are anxious to have the apprenticeship system revised in their own rank.

Third, the conference unanimously agreed that where at all possible both sides, by discussion, should, in those cities where wages paid in the building trades are at a very high level, revise these scales and bring them into conformity with wages paid at the present time in other towns and cities, taking into account the decreasing cost of living, if any.

The secretary then submitted a proof in English and French of the schedule of work which it to be put into force at the earliest opportunity. At the suggestion of the secretary, P. Latourelle and J. E. Walsh were appointed a committee to revise the French version.

A letter was then read from the secretary of Local 144 asking that arrangements be made to hold a meeting between the Master Plumbers and the members of this Union.

intent to conceal information given in the marks, stamps, brands or labels.

Reviewing the situation Sir Henry Drayton pointed out that revenues for 1921-22 from the sources of 1920-21 would reach \$372,600,000 and that the amount of money needed is \$435,360,971. Thus the amount to be secured by additional taxation this year is \$62,760,971.

While the luxury taxes have been abolished, duties will be levied on certain articles on much the same basis. Playing cards come within this category and cards not exceeding \$24 a gross in value will be taxed 8 cents a pack. Cards exceeding \$24 a gross will be taxed 15 cents a pack.

Under the heading of exemptions, foodstuffs figure most prominently. Among them, however, are enumerated ores of metals of all kinds; fuel of all kinds; materials for use only in the construction, equipment and repair of ships; electricity; gas manufactured from coal; calcium carbide or oil for illuminating or heating purposes.

Not Applicable to Exports

The excise taxes as specified are not to be payable on goods exported or on sales of goods made to the order of each individual customer by a business which sells exclusively by retail, under regulations by the Minister of Customs and Inland Revenue, who shall be sole judge as to the classification of a business; and a drawback may be granted of 99 per cent. of the said taxes paid on ma-

terials used, wrought into or attached to articles exported. This section relieves tinsmiths from being classed as manufacturers.

License Fees.

Every manufacturer, producer, wholesaler or jobber may be required to take out an annual license for which a fee not exceeding \$2 will be charged. The penalty for neglecting to take out such license will be \$1,000.

PETERBORO FILTRATION CONTRACTS LET

Peterboro.—Contracts for the construction of a mechanical gravity sand filtration plant here, at an estimated cost of \$350,000, were let by the local utilities committee.

The W. H. Yates Co. of Hamilton was given the contract for the construction of the plant itself, at its tender price of \$198,378. The \$65,800 tender of Ramsay & Wilde, of Sault Ste. Marie, for the filtered water reservoir, and the \$8,950 tender of the Escher-Wyss Co., of Montreal, for the pumps, were accepted.

In all 42 tenders were submitted and in each case the lowest bid secured the contract. The three tenders total \$273,137. The pipe lines will be laid by the committee itself. Work on the construction of the plant will be begun at once.



The ideas for running a plumbing goods showroom, as outlined in this article, are well exemplified in the display shown herewith of a typical showroom, where the value of good display facilities is fully appreciated. The showing of the various fixtures for kitchen and bathroom in an enclosure, gives a better idea of how these will look when installed in the home.

“Back Street Workshop Days are Gone

For Anyone Who Hopes to Own a Big Business,” Says St. John, N.B., Plumber—Showroom Has Stimulated Business—Never Leave Store Unattended

“THE days’ of a workshop in a back street are past and gone with any plumber who hopes to own a big business.” These are the words of J. E. Byrne, of Byrne & McGeouch, plumbers and steamfitters, St. John, N.B., to Sanitary Engineer.

Mr. Byrne went on to say, “We have tried the old method of only having a workshop, but since we established ourselves in our present store, our business has increased by many times. If we had been told that a store would mean such an increase in business, we should have been inclined to doubt the statement.”

A few years ago Messrs. Byrne and McGeouch decided to open up a store in connection with their plumbing business, and the question arose, should they locate in the business section, or in the residential part of the city. After going carefully into the matter they decided to open up their store in one of the best class streets in St. John, in the residential section, but very near to the business

centre. They secured a corner store in one of the finest blocks of buildings in the city, which has proved to be a very successful venture, in spite of the exceedingly high rent they are compelled to pay.

Let Public Know Where You Are

One of the first steps taken was to have an enormous sign painted on the outside wall of the store. This sign has been a business getter from the day it was painted. Being in such a prominent position, nobody can go along the street without noticing it, and considering that many of St. John’s wealthiest citizens live in the locality, and go up and down the street many times a day, it was not many days before hundreds of people knew that Byrne & McGeouch had come on the scene. Attractive window displays are made, showing baths, closets, sinks, wash basins and bathroom fixtures.

The floor of the window is covered

with imitation tiles, and the background painted in white enamel. A stenographer is in charge of the store, and attends to customers, takes orders, answers telephone calls and looks after the office work. Messrs. Byrne & McGeouch do not believe in leaving the store unattended for one moment during the day. Many orders are received that were missed in former days by having their workshop locked up while all hands were away on a job. The stenographer takes in many orders from business men on their way to their offices or stores, and also makes many sales to ladies out shopping during the afternoon, who think that a plumber is the right man to go to when buying bathroom necessities.

The store is devoted entirely to the plumbing and heating requirements. Byrne & McGeouch do not believe in handling any side lines whatever, theirs is purely a plumbers’ store. Speaking on advertising with L. P. McGeouch, he

said, "We have not as yet done any extensive advertising in the newspapers, but have confined our advertising to slides in the moving picture houses, and, by carefully studying the different affairs that are carried out by the prominent citizens, we have bought space in their programs. Program advertising is not always looked upon by the general merchants as one of the best means of publicity, many merchants treat the cost from a donation standpoint. We have found that as there are so many citizens of good standing interested in these affairs, and take home the program as a souvenir, it is an advertisement that works for us for many weeks after the affair is past and gone. We also believe in calendars, and this year we distributed a large number. I would add that a calendar is not much use from an advertising standpoint unless it is attractive. If it is attractive it will be hung up in the house in a prominent position, but if it is not much to look at the chances are that it will be thrown in the ash barrel, and the plumbers' good money will be wasted. We consider our best advertisement to be the work we do, and our aim is to make a thorough job of all we undertake. We stand at the back of all our work, and the many customers who recommend us to their friends proves to us that our efforts are appreciated.

A Common Failing

"We never promise to commence a job at a certain date, and then not turn up. This is a great failing with many plumbers, and I believe that more money is lost through this neglect to keep promises than many plumbers realize. I believe that we should treat jobbing work in the same manner as the merchant treats his business. In other words, we should put service first."

At the rear of Messrs. Byrne & McGeouch's showroom is their office and workshop. A good stock of fittings is carried, and with the modern workshop appliances they have, they are able to turn out work in the shortest possible time. Both Mr. Byrne and Mr. McGeouch are practical plumbers. Sanitary Engineer noticed that they were sound believers in the value of trade papers, and on their desks were many publications published in the interests of the plumbing business. This firm has handled many large jobs, and are prominent whenever tenders are called for heating and plumbing work.

EFFECTIVE DISPLAY OF PLUMBING

An unusually attractive window and store display combining plumbing and electrical goods and fixtures was recently arranged by Cowans, Brantford, Ont. The ceiling of the window was hung with fixtures for electric lighting of homes. There was a wide range for prospective customers to select from and they were kept lighted night and day.

Brass Goods Manufacture Again Active

Resumption of Automobile Industry and Export Trade Have Helped Canadian Brass Goods Manufacturers

RENEWAL of activity in the automobile industry and an increasing export demand have provided improved conditions for Canadian brass goods manufacturers, according to A. H. Tallman, secretary-treasurer the Tallman Brass & Metal Co., Toronto.

Without appearing too optimistic and yet discounting any need for pessimism Mr. Tallman states that the sales of his company for March were double those of either February or January and further increases are anticipated in the next few months.

"Of course, it is a gradual process to get back to anything like we were before the slump came. We are a long way from normal yet, but as I see it there is a healthy undertone that augurs well for the upward trend increasing in volume. I think that by summer conditions will be better than they are now," he said.

Mr. Tallman stated it was well that the process of declination and restoration of conditions had come gradually. Without being gloomy at all, he believed that in certain spheres the decline had not run its full course as yet, but any disadvantages that might accrue through that were more than out-

weighed by the healthy stimulus all industry seemed to have derived of late.

Export Trade

Respecting the export trade, Mr. Tallman said this market at present was limited to South America and South Africa. He did not care to hazard an opinion how fruitful these markets would prove for Canadian-made brass goods, but to date the volume of sales had been very encouraging. Shipping services were good, and customers had made prompt payment. One circumstance in connection with the South African market that afforded his firm satisfaction was the fact that English manufacturers had always virtually controlled it until recently, when Canadian manufacturers began to get a footing there. The latter had found that there was a good demand for high-class brass fixtures.

The domestic market was reported as being good by Mr. Tallman, with indications pointing to a gradual but steadily increasing volume of sales. Revival of the automobile industry had also brought increased business to the company, mainly in the form of aluminum castings.

The variegated glass globes and the various metal finishes made a setting that carried an instant appeal to home makers and involuntarily created the desire for possession. Right up at the front of the store and so close to the window that it could easily be seen was a display of bathroom mirrors, snow white lavatories, bath tubs and bathroom fixtures. Close at hand were vacuum cleaners, electric washers, more electric fixtures and all were ready for demonstration. There was something of interest to hold the prospect everywhere he or she turned, and it was something that was obviously an improvement for the home and would make for easier work or more comfort. The creation of an atmosphere of this kind is invaluable from a sales standpoint. In many cases it means that the prospect practically "sells himself." He is so favorably impressed with what he sees and its manifest utility that only a demonstration is required to close the sale. Cowans finds that it pays and pays well to arrange displays of this kind.

NEW EXECUTIVE OFFICERS IN PEASE FOUNDRY CO.

Changes are announced in the personnel of the executive organization of Pease Foundry Co., Toronto. Mr. Allen Case, Toronto, has been elected president

of the company, and R. J. Millar, who was general manager, is now vice-president and general manager.

Discussing conditions in the heating industry with W. E. Fice, sales manager of the firm, Sanitary Engineer was informed that the expectation is for a big revival of business during the last six months of the year, similar to the condition of 1919. Judging from reports coming to hand and the amount of new building of medium grade houses now being conducted, Mr. Fice stated it as his belief that the last six months of the year will see a demand for heating facilities which may result in some shortage of supplies. He stated that many houses were being finished up without provision made for heating, this being sometimes left to the purchaser, to select his own heating and in other cases it was the result of builders waiting until the last minute in case of further price reductions.

* * *

O. H. Willison, of the Lyman Tube and Supply Company, Montreal, has just returned from a six weeks' trip to England, where he spent a month at the plant of the Hoffmann Manufacturing Co., manufacturers of ball and roller bearings. The Lyman Tube and Supply Company will carry a large stock of Hoffmann equipment in their Canadian warehouses.

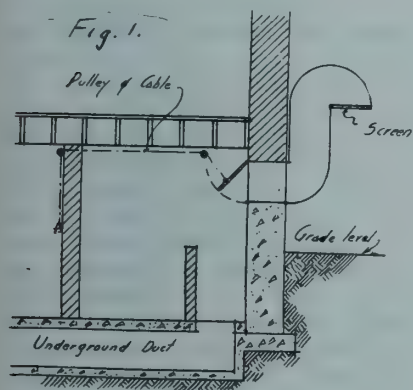
Heating and Ventilating

Combination Heating Systems

Seventh article of an important series, written exclusively for Sanitary Engineer
by N. A. Kearns

(Continued from last issue)

ALTHOUGH it is possible to heat a building without making provision for ventilation, it is, nevertheless, advisable to provide, whenever possible, some means of introducing fresh air into and exhausting the foul air from the building.



In some cases the fresh air inlet is provided and reliance for ventilation is placed on accidental leakage. Perhaps the leakage is better than no exhaust system at all, yet it is, at best, more or less of a makeshift method of ventilating a building. Therefore, whenever it is possible to do so, some arrangement should be made for the venting of the foul air, as well as that for the admission of fresh air. However, it is the fresh air inlets alone to which we would now direct attention. A later article will illustrate a method frequently used for exhausting foul air from a residence.

Outside Cold-Air Duct.

When cold air is taken from out of doors it should not be taken from a point less than six feet from the grade line. Fig. 1 shows a typical outside air inlet.

This drawing shows the duct turned at the top so that the mouth of the inlet will be protected from snow and rain. A bird and insect proof galvanized iron screen is placed in the inlet.

It will be noted that the inlet opens to a rather large chamber. This increase in the size of the cold air passage is to provide for the equalization of the air currents. If the inlet duct should be carried to the furnace connection without change of area, the fluctuations of pressure in the outer atmosphere would cause sudden gusts of air to pass through the furnace, and thereby reduce the heating effect to a considerable extent. When a fairly large equalizing chamber is provided the flow of air through the ducts is fairly constant.

The damper at the fresh cold-air intake may be set in any position made necessary by the various conditions of weather: in cold windy weather the inlet may be almost entirely closed, and in mild weather entirely opened.

Two Inlets.

A cold air inlet such as that shown by Fig. 1 must be placed only on the windward side of the house. This is because such an inlet provides for the admittance of outside air from one direction only. If an inlet like this should be placed on the leeward side, it is altogether likely that the air would

be drawn out of the house by way of the underground duct and equalizing chamber.

Fig. 2 shows an arrangement for two cold-air inlets, installed to provide for a positive inflow of air when the wind current is from either of two different directions. An arrangement like this is termed a "cross-over."

Each cold air inlet must be fitted with a tight damper, and the damper so connected that the act of closing one will open the other.

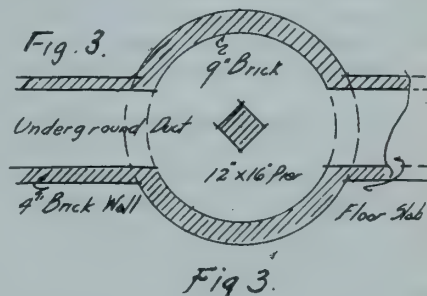
Furnace Pit.

All of the accompanying drawings show the cold air duct as an underground passage to the furnace.

When an underground duct is carried right up to the furnace casing it will be necessary to provide a pit for this setting. Fig. 3 shows a typical pit for the ordinary portable furnace.

The walls of the pit are circular in plan, and are built of brick.

The inside diameter of the pit should be equal to the inside diameter of the furnace base-ring. The depth of the pit will vary from 12 inches to 18 inches,



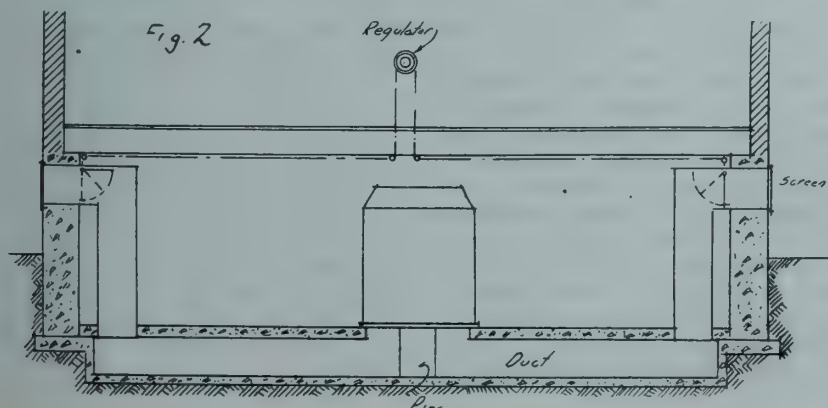
as the size of the furnace may demand.

At the centre of the pit a brick pier is to be built. This pier should be set with its corners turned in the direction of the flow of cold air.

It will be noted that the greater part of the weight of the furnace must come on the bottom casting of the ash-pit, and unless the casting appears to be strong enough to bear this load the pier should be placed close to the back of the pit.

The floor and walls of the pit should be water-proofed with cement with which some water-proofing compound is mixed.

The cold air opening, or openings, may be made in any part of the circle. However it is not advisable to make a cold air opening directly under the ash-pit door unless the covering plates are made extra strong and dust-proof.



Tests to Determine Inside Casings of Pipeless Warm Air Heaters

Construction of Inside Casing on Pipeless Furnace is Important—Many Furnaces Being Sold Without Casings

THERE are a number of manufacturers who are selling pipeless furnaces without casings, simply shipping the castings and allowing the dealer to manufacture his own casing, writes the manager of the furnace department of a manufacturing plant.

"Recently one of our travellers sent in turers did not realize the importance of the proper construction of the inside casing on a pipeless furnace. We were convinced of this because of the large variation discovered in the circulation and in the efficiency of the different makes of furnaces that we tested when we brought out the present line of furnaces, he states.

Recently one of our travellers sent in an order for some pipeless furnaces without casing. In order to see whether we were fanatical or not in regard to our views we tested the matter out thoroughly as follows:

We began just after lunch, weighed the paper that started the kindling, weighed the kindling and coal, made a record of the time and number of pounds of coal put on the fire as the test went along. We took a test every fifteen minutes of the velocity and the temperature of the air coming from the register, also the temperature of the outside casing at a point half way between the register and the bottom of the furnace. We kept this test going all afternoon, held the fire over night and ran the test all the next day.

We then uncased this furnace and put an inside casing on made only of black iron, without any air space, without any lining, or, in other words, the crudest inside casing that we could conceive of anyone building. In other words we took out the 16-inch asbestos board and the corrugated iron that we use on the construction of our inside casing. I might say that this iron is made up in a special machine that we have which makes a sharp edge, making the point of the contact with main casing the very least that it is possible to have. The asbestos board is placed between the flat casing sheet and the corrugated iron and is not pasted to the casing but is held in there loosely by means of the rivets going through between the two casings.

After we had put in place the poor inside casing we proceeded to duplicate our firing the same as we had the first day, building our fire at exactly the same time with exactly the same amount of paper, kindling and coal. We replenished the fire at exactly the same time and used exactly the same number of pounds of coal, or, in other words, we duplicated the

operation so far as producing heat was concerned.

Results

We shall not go into detail to give you all the different readings we had during these two tests, but we will give you the high points.

Test of Furnace with Good Inside Casing

With the furnace running at the highest possible speed we developed a velocity of 795 feet per minute as the speed of the air coming from the register. We also want to state that the hotter we got our furnace the faster the air circulated, which was as it should be. The hottest we could get our outside casing was 190 degrees. The temperature of the air coming from the register was 410 degrees.

Test of Furnace with Poor Inside Casing

We began this test by duplicating the firing method exactly. We took the first test after fifteen minutes and then the second test at the end of the next fifteen minutes or thirty minutes after the fire had been started, and we found both of these tests showed that the speed of the air was increasing. But at the end of forty-five minutes, or at the time to take the third test, we found that the speed of the air had dropped down to the point where it was between the readings taken at the end of 15 and the end of 30 minutes. From that time on the circulation dropped back until it became so slow that when the furnace was running at a good rate of speed it dropped down to only 160 feet per minute. The outside casing raised to the extreme temperature of 375 degrees. Not only did the air slow down and not only did the heat go out through the casings, but the circulation of the air was so slow and so poor it did not carry the heat away from the castings, and the furnace became so hot that we were afraid that it would melt and run. The thermometer that we were using at the register line only recorded up to 642 degrees and the circulation of the air was so slow through the furnace that it became so overheated it broke the thermometer because of the expansion of the mercury in the thermometer.

A few minutes after the thermometer broke the room became so hot that it melted off one of the heads of the sprinkling inductive ballast is used in the arc ling system and a flood of water came down upon us which stopped the test and automatically turned in the fire alarm. It was very plain to see the difference between a good inside casing on a furnace and a poor one.

About three years ago the furnace industry dropped to the lowest point on

account of the poor installation of pipe furnaces.

Along came the pipeless furnace, which gave the user more heat for less money in the way of fuel, better distribution of heat than was the case in the poorly installed pipe job.

We do not say that a pipe job can not be put in that is better than a pipeless job. But we do want to take things as they are and say frankly that there have been more poor pipe jobs put in than there have been good ones.

The public is interested only in results. They have come to a conclusion that pipe jobs are not satisfactory and are demanding pipeless furnaces. The pipeless furnace has grown to large volume. We predict that if the manufacturer does not build a real inside lining and insist that this be used on each and every one of his pipeless furnaces that we have reached the high point in the pipeless furnace business and that it will begin to drop off.

QUESTIONS AND ANSWERS

Question.—Would you kindly advise me through your columns who was responsible for our standard known as the British thermal unit, and, if possible, how it was arrived at? In calculating heat values, would it be possible, using gas or coal as fuel, that this standard would vary in either case? I presume not. Further, would you state on an average job how many B.t.u.s are necessary to be delivered to the water in cast iron standard radiation to maintain 70 degrees F. of temperature, with a difference of 85 degrees between the inside and outside, on 1,500 square feet of direct hot water radiation?—H. S. D.

Answer.—The standard measurement of heat quantity in common use in English speaking countries and designated as the British thermal unit (B.t.u.) was, we believe, originated by Dr. Joule, of England.

It was by a series of careful experiments that the originator discovered the quantity of heat required to raise the temperature of one pound of water one degree.

The standard is the quantity of heat required to raise the temperature of one pound of water from 62 degrees to 63 degrees F. For temperatures above 63 degrees it takes slightly more than one B.t.u. to effect the change in temperature. For temperatures of less than 62 degrees it takes slightly less. However, the differences either way are so small that for ordinary purposes it may be assumed that one B.t.u. per one degree is a uniform standard for all temperatures.

No matter what kind of fuel is used the standard of the B.t.u. never varies.

On an average job of 1,500 square feet of direct hot-water radiation it will be necessary to supply 225,000 B.t.u. per hour.

Simplified Bookkeeping for Plumbers

What Data Everyone in the Plumbing Business Should Have
At All Times Concerning Their Business—The Bill and Charge
System—Tenders Should Be Recorded in Black and White

By Wm. Parker and E. J. Lehl, Lethbridge, Alta.

IT is a pretty big order to recommend a system of book-keeping to suit the businesses of all the members of this association. No one particular system would suit you all. We have to consider quite a lot of things when putting in a system of accounting that will function with success, but the following system is adaptable to any business with very slight modifications.

You may be able to afford good office help or only cheap help or perhaps you only have your books written up at intervals. Still the system or general principles will be the same.

In most cases there will likely be a shop with several journeymen and helpers, a show room, but the business not generally engaged in merchandising. In a business of this description the proprietor in former times could manage along with a rough and ready method of keeping track of things, and in most cases he knew just about where he was at. In some cases, however, especially in the case of the new starter, he did not know where he was at, and found himself out of luck. Anyway at the present time you have no option, you are up against very stringent Government regulations as to the accounting end of your business and you are compelled under very severe penalties to keep a complete record of your business.

We want the system as simple as possible, but there is no magic about book-keeping and it has to be carried out from start to finish.

There is nothing in this paper pinched from text books and I am advising what I know to be practical and well tried out.

What You Should Know

Everyone engaged in the plumbing business ought to know:

The profit they make on each contract.

The profit they make each month or at the end of each three months against expense and overhead. That is to say net profit.

The amount they owe at any date.

The amount owing to them at any date.

The amount of their liquid assets at any date.

The above information is of vital importance to any business man, and if your wholesaler and banker know that you are keeping tab as above, they will carry you to the limit.

We now come to the outfit we require, and you all know a lot depends on the tools you have to work with.

You will require to do the thing right:

A loose-leaf private ledger, sometimes called the general ledger. This will have two sets of indexes, one for private accounts and the other for purchase accounts.

A loose-leaf customers' accounts ledger.

Duplicate bill and charge system.

Synoptic or daily analysis.

Payroll book.

Counter check books.

Duplicate job sheets, numbered and padded.

Time sheets, padded.

Estimate sheets.

Shannon files.

Filing cabinet, vertical system with folders.

I will explain as shortly as possible how to handle the above.

We will take first of all the

Counter Check Book

This is the most important book in our system, and it is advisable to have a book about half as wide again as the usual store counter check book. It is to be used for recording:

Material taken to and from jobs.

Goods sold to customers, charge accounts.

Goods sold to customers for cash.

Cash received from customers.

Cash paid out other than by check, and any other shop or store transaction not recorded on job slips.

Every day or at frequent intervals tear out the duplicates and file on binders. You will require a binder for

Material.

Charge sales.

Cash sales.

Cash received from customers.

Cash paid out.

Now it is imperative that every shop or store transaction except those recorded on job slips should be made through your counter check book. You are not in a position to keep a stock record but you will be in a position to check up most anything in case you are suspicious of a leakage.

Every journeyman should have his own counter check book. It can be used for small C.O.D. jobs. It is no great trick for him to present your bill at the end of a small job and return with the money, thus saving you considerable trouble in collections. He will have his material slip in his counter check book and it is an easy matter for you to mark the prices for him.

Job Slips

A job slip is indispensable. They

should be in duplicate, padded and numbered.

A proper form of job slip should show:
Date order received.

Who ordered by.

Name to be billed and address.

Address of job.

Character of work to be done.

Then about 10 or 15 lines with money column for quantities and time.

At the bottom of sheet:

Workman's name and space for number of hours.

Helper's name and space for number of hours.

Date job finished.

Printed instructions as to turning in job slip, etc.

You file the duplicate in the office and give workman the original when he is sent out to the job. On the completion of job he will fill in a list of material used. This you can check up from the material slips and complete the duplicate you have on file from the time sheets. You now have an invoice in the rough and you pass it along to the bill and charge system.

The Bill and Charge System

This consists of a post binder with in dex. I recommend billheads 8½" by 7¼", with plain yellow sheet the same size and punched to fit binder. You can buy the whole outfit of post binder, invoices and yellow sheets, and transfer binder. The cost is very little. Or you can use an ordinary Shannon file. The principle is just the same.

A sheet of carbon paper is placed between the billhead and yellow sheet, and then the bill is made out on the typewriter or with indelible pencil. The yellow sheet is then filed in the binder and the amount later posted to the customers' ledger. This method obviates the necessity of writing items in a day book and gives you an accurate record of each bill. Give the number of the job slip on the bill and mark the job slip "entered."

Treat in the same way any charge slips in the counter check book binder, except that seeing that they have already had a bill of the goods you can keep the original in the binder until the end of the month in case the customer makes further purchases during that month.

In order to know that your billing is correct and also for your synoptic entries, you will list the job slips and counter checks marked entered. The to-

tal of these should agree with the total of your invoices.

When listing you will require a sheet with three money columns, viz., for total, material, and labor.

When you have balanced your charge book, file your job slips and counter checks away for future reference.

Synoptic

The synoptic is the easiest and most popular method of analyzing your daily business. You can buy a synoptic with any number of columns. We shall require ours to have sufficient columns to take the following headings:

Private ledger.
Purchase accounts.
Customers' accounts.
Cash.
Bank.
Stock and material bought.
Stock and material sold.
Labor.

Expense, and a couple of columns for special use left blank.

You will start your synoptic with the total of your

Purchase accounts in its own column.
Customers' accounts in its own column.
Cash on hand in its own column.
Cash in bank in its own column.
Material in its own column.

As the total of the debits and credits must always agree in the synoptic, we then have to make an entry to balance them in the private ledger column.

The object in starting off this way is so that at any time we can tell at a glance how we stand without having to turn up and do a lot of figuring with the ledger balances controlling them. That is to say we can always see how much we owe by taking the debits from the credits of the purchase column, and the same method shows us the amount of customers' accounts, cash on hand, cash in bank, material, sales, expenses, etc.

In a big business it is usual to post the totals of the synoptic monthly and start afresh each month. This is not necessary and the average business can carry the footings forward until the end of the financial year.

We also have a great advantage in taking off a trial balance at any time. We are able to divide our trial balance into three sections and balance each separately. This makes it very easy in locating errors. Take, for instance, our customers' ledger. We look at our customers' accounts column and find that there is a balance of \$3,405.69; we then take off the balances in this ledger and if the balances do not come to this sum we know that we have made a mistake in posting and set about to find the mistake. When we have found it we know that more than one-third of our trial balance is O.K. We use the same method with the purchase ledger. When we have proved this to be correct, we only have the private ledger to balance. We take the balances we find there and

list them with the totals we find in the synoptic, leaving out the totals of the column marked private ledger. We thus divide our work in finding our balance into three different jobs and make it comparatively easy.

If you require information as to your sales, etc., monthly, all you have to do is to deduct the total brought forward from the previous month and the difference is your sales for the month, and so on. Keep this information in a small loose-leaf note book handy for your pocket or private drawer. You can keep in this information covering many years, and it is interesting to look back to.

Keeping Track of Tenders

In the private accounts column you keep track of all tenders. Open a special account for each tender. When the tender is completed and all charges made, mark the account transferred to contract profit and loss, and carry the footings both debit and credit to this account. You will then have in this account a complete list of your contracts showing the profit and loss on each one, and by adding the totals you will see how much profit you have made on the volume of contract business you have done.

It would take too long to go into details as to the various entries you will most likely make in your synoptic, and if you don't know anything about book-keeping you had better get permanent or occasional help. In the case of only being able to afford occasional office help, then it is up to you to make an entry without fail of every transaction that takes place. Your counter check books, job slips, check book and time sheets will cover most everything, and you will be able to do your billing yourself.

Overhead has raised a lot of discussion at all times and I would advise including your overhead in your expense column each month. You will have to make entries each month when you have ascertained your overhead. You can find out what your insurance, interest, taxes, etc., will most likely be. Then divide each by 12 and every month make entries in your expense column charging up this one-twelfth and crediting a reserve for each item. You will then have at all times a record of your total general monthly expenses and overhead expense. When you pay your insurance say, you don't charge up insurance, you charge up the reserve account you have for insurance, any balance showing in this at any time will be for insurance prepaid and will show as an asset on your financial statement. The overhead will vary largely with different businesses and I think it is advisable to arrive accurately at your own, then you are in a position to add on to your estimates the amount for expense and overhead that will be right for your own particular business.

We are only using one column in the

synoptic for all of our expense, but at the end of our financial year we require to know for comparison with other years how this is made up.

All we have to do to take a sheet of the synoptic and fill in the necessary headings for say

General expense.

Office expense.

Delivery expense.

Heat and light.

Advertising.

Proportion proprietor's salary not charged to jobs.

Interest on loans.

Insurance.

Rent.

Taxes, or any other information for special classification—and enter each item in expense column for year in its own column.

Instead therefore of posting the total of our expense column, we post each item as above to the private ledger.

Payroll

You now have to keep a payroll which will be open to Government inspection.

As journeymen are now usually paid by the hour, the ordinary weekly payroll book will be all right.

You will make up this from the men's time sheets.

Pay them by check. Or if you pay them by cash, put the amount through your counter check book and let them sign the book (counter check).

Tenders

When submitting a tender, no matter how small, have it down in black and white and save disputes, lawsuits and loss of customers. Every estimate you give should be written in full and in duplicate or triplicate, and when accepted by customer should be signed by him and a copy retained by him. You can buy cheaply enough stock tender forms, and only need to fill in the specifications and amount of estimate.

Estimates

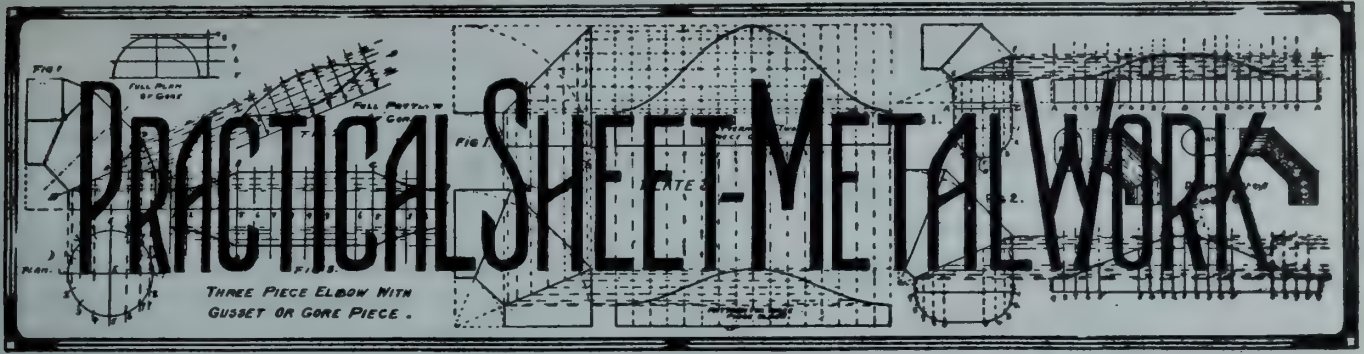
It is advisable to make out your estimate on a regular stock form, or make it out on a sheet with two money columns. One of them head Estimate, and the other Actual Cost. If your estimate is accepted your private ledger account will show how you came out on the work. If the profit is less than it ought to have been, then you can check up item for item and discover where you fell down.

Filing

You will require several Shannon files and you ought to have a cabinet file with at least three drawers.

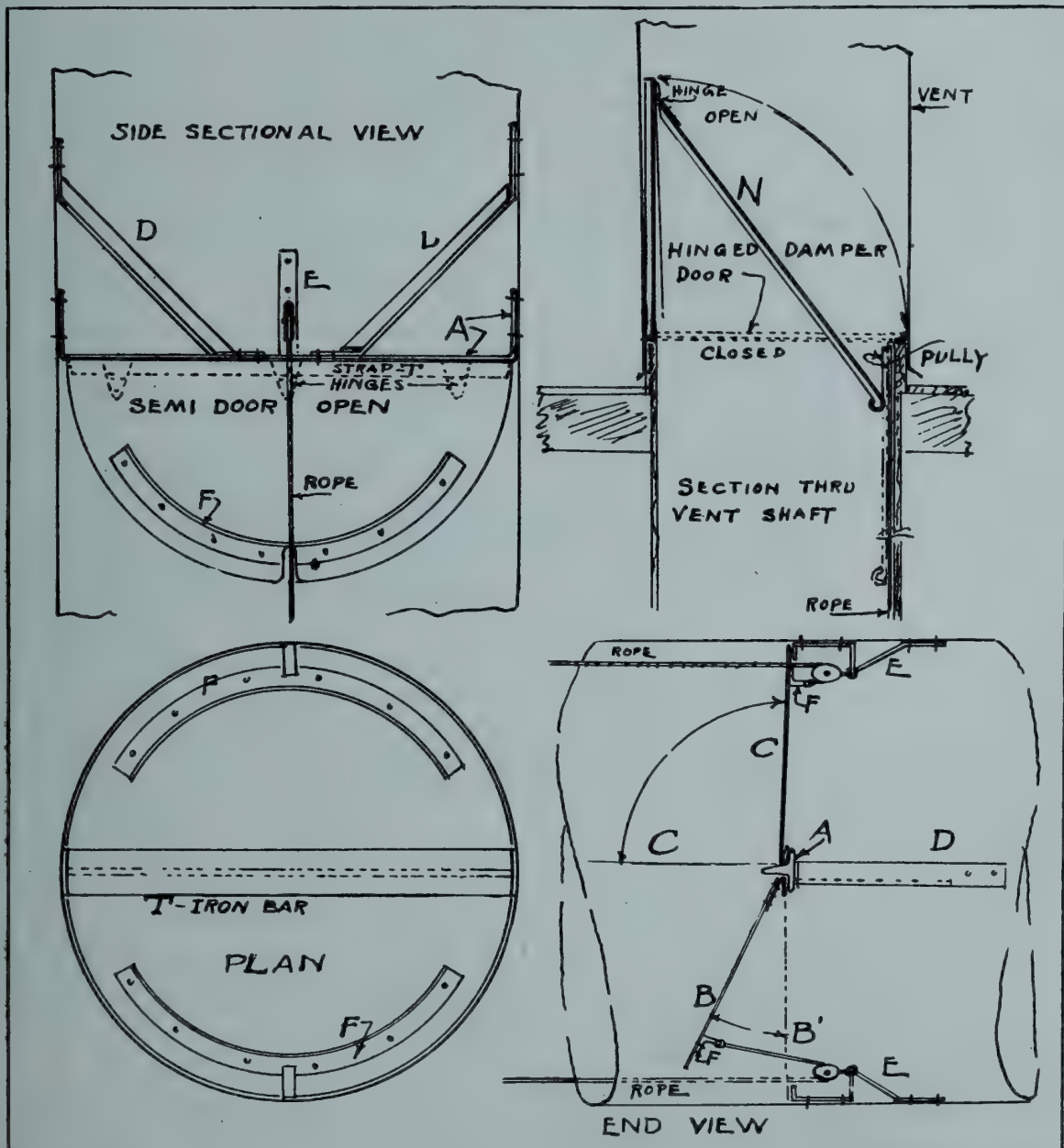
File your invoices on Shannon file until they are checked off. When checked off and entered in your synoptic file them away in your cabinet file. File in the second drawer from the top. Have a folder for each wholesaler. Do not file them loosely away in the folder, each invoice as you file it away should be pasted at the corner to the preceding

(Continued on page 23)



Details for Ventilator Damper

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.



RESPONDING to an inquiry for dampers in large ventilator pipe, made of 14 gauge iron, the following suggestions in drawing may be of service. Not knowing the exact requirements of the job or duties of it, it is

rather hard to work out details, and so these suggestions may be taken to help work out something else, if need be.

For a large ventilator six feet in diameter it would no doubt be best to make the damper in two pieces, hinging it by

a tee bar in the center and operating it with pulleys. This will allow opening and closing and overcomes that angle of a damper made in one piece to stand obliquely.

Continued on page 29)

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THE BUDGET

NEW tax and tariff proposals outlined in the Budget speech of the Minister of Finance appear to be generally acceptable to plumbing and heating industry because of the fact that little or no disruption will be caused by the extension of the sales tax principle as now followed out by wholesalers and manufacturers only. One of the most interesting points to the trade is the final removal of tinsmiths from the category of "manufacturers." This action immediately following the hearing of the test case at Ottawa, and before the judge had a chance to render a decision, is somewhat significant of what the case might have been expected to prove, namely, that tinsmiths who make up articles on special order are not manufacturers in any sense of the word. The new regulations governing the basis of value for duty of imported articles will tend to give the Canadian manufacturer a little more protection, though not rendering this of such far-reaching importance as to discourage trade with other countries. Provisions are made to strengthen the anti-dumping law and after September 21 imported goods are to be marked with the country of origin. The latter step is to prevent articles being sold in this country as being of "British" origin, for instance, when they are the product of some other country. This unfair practice has been common in some lines recently.

One of the points in connection with the Budget on which there is some difference of opinion is the question of manufacturer and wholesaler showing the amount of the sales tax separately on the invoice. Under the new regulations this is not made necessary, as was formerly the case. In some trades wholesalers and manufacturers, realizing the value of following some definite line of action in this respect, have decided on a set plan of showing at least 1½ per cent. separately on each invoice. The difficulties consequent upon one wholesaler showing this separately and another absorbing it in the invoiced cost of the goods are quite obvious. Not only would the trade find it more difficult to make comparisons of quotations, but the wholesalers themselves would have difficulties keeping a record of the amount of tax collected and owed by them to the Government. This is one of the points which will no doubt have to be cleared up by those in each individual trade.

INSUFFICIENT SANITARY PROTECTION

IN connection with the plumber's dealings with his clients he will have many opportunities of emphasizing the serious consequences which follow upon the neglect of ordinary sanitary measures. At certain periods of the year circumstances render this neglect much more serious. In view of the forthcoming summer season, when many people shut up their city homes for the summer and in view of the fact that there are a certain number of people who have been away for the winter months who are now reopening their city homes, the occasion may be taken advantage of to point out the dangers of re-entering a house where insufficient sanitary protection has been afforded and which has had no ventilation for some months.

Many families having closed up their homes during periods of travel, detect on their return an offensive odor permeating the different apartments. The difficulty is simply this: the water which stands in the traps of house pipes and which shuts off gases from the sewer when fixtures are not receiving their customary supply, evaporates during the absences of occupants; and gases from the main sewer and house pipes are permitted to enter; and for weeks perhaps there has been no water seal in the traps, the ascent of sewer air has been continuous, so that not only the air is utterly unfit to live in, but curtains, carpets and other absorbing furnishings have been saturated with infections thus acquired. Let it be remembered that when lavatories, sinks and other fixtures are not in use they are gradually losing by evaporation the trapped water seal, and authorities have declared that sewer air is the most poisonous of all the gases of known composition; that it is heavier than the ordinary atmospheric air; that experiments have been made with it by chemical authorities, which show that this gas will kill animal life. This gas, therefore, must be removed so far away from us that it cannot return in the form of dangerous invisible gases of decomposition. It must then be obvious to any person that a thorough system of plumbing and house drainage is necessary in order that the building may be kept free from these insanitary conditions.

The remedy for these insanitary evils is readily found in continual scientific and practical effort on part of the people who dwell in cities, country towns and farm houses by calling to their aid the advice of the scientific master plumbers of the country, who in the past decades have almost eliminated from the homes of the people in this nation deleterious odors that arise in sewers to far greater extent than in any other country.

Under a catchy heading a Halifax firm states "Now is the time reserved for private plumbing. A little later most of our best men will be tied up handling new building contracts. Better take advantage of our free inspection now when we have time to give you a good job without rush."

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

Article No. 31 of the Series—Illustration No. 37

(Continued from last issue)

THE method of conveying the sewage from the different sanitary fixtures from the house is best accomplished by either cast iron or vitrified socketed pipes. These pipes must be constructed and laid with special care and attention, otherwise the sanitary system of the private house proves a failure.

The pipes need not be more than four inches in diameter but must be laid true to grade and line with the socket end directed towards the sewage flow as shown in Fig. 37A and not as shown in Fig. 37B. The fall should neither be too great or too little as both have their

rule-of-thumb method of multiplying the diameter by ten and that will give the fall the pipe should have. For example: take a 6 inch diameter pipe, 6 times 10 are 60, then a 6 inch pipe should be laid at a fall of 1 foot in 60 feet. If ample fall cannot be obtained through local circumstances, it is always advisable to install some artificial means of flushing, as it is imperative that the channel or pipe should be perfectly cleansed after each discharge.

Before laying, each pipe should be well inspected as defects frequently occur in process of manufacture which render many pipes unfit for use in

leak. If, through error, this does occur the replaced soil should be well wetted and tamped and made perfectly solid before the pipes are laid on same. It is always advisable to dig out collar holes under each joint in order that the jointer can make the bottom of the pipe as good as the top, otherwise the joints are badly made and leak, and then again if the earth is not removed under the sockets the whole weight of the pipe rests on the narrow bearing of the socket instead of on the body of the pipe at the bottom of the trench and when the trench is refilled and properly tamped the whole weight of the soil is concentrated at the socket or joint centres instead of being uniformly distributed along the entire length of the pipe, which is liable to cause the recently cemented joint to crack or settle.

Care should always be taken that the collar or socket holes are well packed after the joints are made and before the trench is refilled or the same trouble will occur through the weight of the soil on the collars.



FIG. 37. A.



B.

objections in small sewers. The flow or velocity should not exceed 6 feet per second or be less than 3 feet per second, a good self-cleansing velocity being from 4 to 4½ feet per second. If the velocity of grade is too great the liquid is apt to leave the solids behind and the grit or hard mineral matter, which usually finds access to all drains, has a tendency to wear the invert of the pipe in time.

A poor grade is far more disastrous than a quick one and it should be the aim of all constructing small installations to get the sewage at the disposal works as soon as possible, otherwise decomposition sets in and the foul gases are given off, creating a nuisance and sometimes a blockage in the drainage system.

The larger the diameter of the pipe or drain, the less the grade required to produce a good self-cleansing velocity and a quick and efficient way of determining the grade of a pipe is the old

first-class work. The pipes sometimes are not cylindrical, which prevents the spigot accurately fitting into the socket, the internal surface must be smooth and thoroughly well covered with glaze and the pipes are very liable to crack and blister and sometimes contain many flaws which prevent the pipes being thoroughly watertight. A good and simple way to test a pipe on the works is to stand a suspected imperfect pipe on its end, making same watertight, and cover the outside of the pipe with a soap solution, then fill the pipe with water and any leakage is easily detected on the soapy surface.

The trenches should be excavated, in lengths and not piece by piece, to the level and depth required for a true bone or grade and care should be taken that the floor or bottom of the trench is dug to the exact depth, otherwise same would have to be filled in and is always liable to settlement which would break the joints or pipes and allow the sewage to

SIMPLIFIED BOOKKEEPING FOR PLUMBERS

(Continued from page 20)

one in that folder. Paste is cheap and you will find that this method gives you a system of filing your invoices that is very handy. At the end of the year lift out the whole of the folder and without disturbing them at all place in the bottom drawer. You will thus be able to place your hand in a second on any firm's total invoices for the preceding year. You can take the firm's invoices out of the folder and they will be in the form of a book and not likely to be lost or scattered about. You will readily see that each of these bunches of invoices will agree with your ledger account with the firm, and in case of an audit there will be no difficulty in checking up.

The top drawer of your cabinet file should have three sets of folders:

The first one for general correspondence.

The second for copies of orders.

The third for copies of tenders.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

St. Johns, Que. — Marchessault & Frere, plumbers, have dissolved partnership.

NEW FIRMS.

Sturgeon Falls, Ont.—Depatie & Roche have commenced plumbing and tinsmithing business.

Reston, Man.—H. G. Coleman is commencing plumbing and tinsmithing business.

A newcomer in the tinsmith and plumbing field is O. J. Muntz, Dundas Street, Woodstock. Although in business three months he is being kept very busy. He has three men on tinsmithing and has work for four weeks ahead.

Mr. Muntz has been in this line of work here for eleven years.

PERSONAL

David K. Trotter, secretary of the Montreal Master Plumbers' Association, was in Ottawa last week attending the Builders' Conference under the chairmanship of the Minister of Labor.

MONCTON PLUMBERS AGAIN AT WORK

Moncton, N.B., union plumbers are again at work, having received an increase in wages.

PLUMBERS ON BORDER STRIKE

Windsor, Ont.—Plumbers of the Border Cities have laid down their tools in protest against a wage reduction of from \$1.06¼ to 95 cents an hour.

HAVE MOVED OFFICES

The Port Hope Sanitary Manufacturing Company, Ltd., have moved their Montreal sales office from 234 Beaver Hall Hill to the Southam Building, at 128 Bleury St., Montreal.

PLUMBERS' DISPLAY WINS PRIZE

Toronto.—Lillie Plumbing Co., Roncesvalles Avenue, won second prize for display of equipment in a contest among all merchants in connection with a recent event staged by district business men.

AMEND CHATHAM WATER BY-LAW

Chatham.—The waterworks by-law will be changed at the next meeting of the Water Board to permit the laying of water mains under the Local Improvement Act. The question of putting in extensions to water mains has been under discussion for some time, and ac-

tion was taken as a result of a communication from Kitchener, where the plan has already been adopted.

WESTERN ONTARIO NEWS

Alex. Ross, 32 Railway Street, St. Thomas, Ont., wants prices on hot air heating, plumbing and electrical work for two new residences to cost \$7,000.

R. Kitchen, 19 Hemlock Street, St. Thomas, Ont., has commenced excavating for a \$3,500 residence and wants prices on heating, plumbing and electrical work.

T. Trotter, 470 Egerton St., London, Ont., will start work immediately on new residence to cost \$3,500 and wants prices on hot air heating, plumbing and electrical work.

The town council at Leamington, Ont., has awarded contracts for new sewers on Robinson St., Victoria Ave. and Orange St. to F. Smithson.

Reeve Allan McPherson, of Glencoe, Ont., is preparing plans for new \$6,000 residence and wants prices on heating, plumbing and electrical equipment.

Plans are being prepared by Engineer R. W. Code, of Windsor, Ont., for new sewers at Kingsville to cost \$52,000 and tenders will be called for the work about June 1.

The ratepayers of Sarnia, Ont., are to vote on June 6 on a by-law to provide \$95,000 for extensions and improvements to the waterworks system.

Crane Limited, who recently purchased property at London, Ont., for a new warehouse for Western Ontario, plan to commence building operations early in June.

Williams and Roberts, Tecumseh Ave., London, Ont., were awarded contract for plumbing and heating for new residence for L. Smart.

The Mason & Risch Piano Co., Chatham, Ont., plan installation of a new steam heating system. Truman Dillon, manager, wants prices.

Eggett & Co., London, have contract for plumbing and heating for a new residence being erected by T. R. Wright.

Alex. Sutherland, 35 Clark St., has been awarded the heating and James Haslett the plumbing for new \$8,000 residence at London, Ont., for Lee Walden.

TENDERS WANTED

Montreal.—Tenders will be received for six residences, also prices on plumbing and temporary heating for G. Clermont, 303 St. Denis St. General contract for the project, twenty-six residences costing \$130,000, is placed with Brunet & Vezina, 601 Mount Royal Ave. East.

Tenders will be received until May 17 by W. A. Tanner, secretary of the board of education, at London, Ont., for steam heating system, plumbing, ventilating system and electrical work in connection with new fourteen room school to cost \$160,000.

The Wright Teale Co., London, Ont., have been awarded contract for heating and plumbing for new \$5,000 residence for Thomas E. Walsh.

The Jackson Manufacturing Co., Durham, Ont., are preparing plans for two-story addition to factory and want prices on heating equipment.

Charles George, Glencoe, Ont., will receive tenders until June 1 for installing hot air heating system in the town hall.

Thomas Jenner, of Harrow, Ont., is preparing plans for six room addition to the public school at Kingsville, Ont., and for remodelling large residence to be rebuilt into high school. Estimated cost \$60,000. Tenders will be called early in June and prices are wanted on heating, plumbing and electrical equipment.

Ingram & Davey, of St. Thomas, Ont., hardware and plumbing, expect to commence work in a few weeks on extensive alterations and additions to their premises.

Gideon Litt, Mitchell, Ont., wants prices on heating, plumbing and electrical work for three new residences which will be erected at a cost of \$12,000.

W. Leaming, Corunna, Ont., is preparing plans for new summer hotel to cost \$25,000 and is interested immediately in prices of bathroom equipment and general plumbing.

Willard Ingram, Mitchell, Ont., will commence work shortly on three new residences to cost \$15,000 and wants prices on heating, plumbing and electrical work.

* * *

Work will be commenced in a couple of weeks on a new \$5,000 manse at Paisley, Ont., for the Presbyterian congregation, Rev. H. D. McCuaig, pastor. Prices wanted on hot air heating, plumbing and electrical work.

* * *

George Sutherland, Mount Brydges, Ont., wants prices on heating and plumbing for new \$4,500 bungalow.

* * *

Albert Doyle, 1073 York St., London, Ont., has been awarded the plumbing and heating contracts in connection with new \$15,000 meeting hall for the Salvation Army.

* * *

J. C. McNiven, Dorchester, Ont., wants prices on heating and plumbing for new \$4,000 residence on which work is just starting.

* * *

J. P. Pearce, 201 Cheapside St., London, Ont., is preparing plans for new residence to cost \$9,000. Prices wanted on hot water heating, plumbing and electrical work.

* * *

Hamilton & Stott, of St. Thomas, Ont., have contract for steam heating for new Presbyterian church at Dutton, Ont.

* * *

John Eggett, of the plumbing firm of Eggett & Co., London, Ont., is preparing plans for a new residence to be erected this summer.

MONTREAL PLUMBERS TO ATTEND QUEBEC CONVENTION IN MONTREAL

Montreal.—At the regular monthly meeting of the Montreal Master Plumbers' Association, the following members were officially nominated to represent the Montreal Branch. This enables them to vote as representatives of Montreal: D. A. Bethune, T. Latourelle, A. Charrette, H. Lavigeour, John Watson, James Buchan, J. E. Walsh, P. C. Ogilvie, W. G. Borland, R. R. McCauley, Walter Ryan, James Griffin and John A. Gordon.

GODERICH MUST IMPROVE ITS WATER SUPPLY

Goderich, Ont.—The town clerk, L. L. Knox, has received an order from the Provincial Board of Health requiring the town council and carry out certain improvements in the water supply. The immediate installation of a water filter plant and also the installation in connection with the water works filtration plant of a chlorinating apparatus for the further protection of the water supply, same to be arranged for the administration of liquid chlorine.

W. H. Cunningham & Co. Enlarge Business

Incorporation Secured Under Name of W. H. Cunningham and Hill, Ltd.—T. H. McLaren, Formerly With the Galt Brass Co., Joins New Firm

THE firm of W. H. Cunningham & Co., Toronto, will in future be known as W. H. Cunningham & Hill, Limited. This company was established five years ago by W. H. Cunningham,



W. H. CUNNINGHAM, President

ham, who was formerly for sixteen years with the James Robertson Co., Toronto, and the Ideal Manufacturing Co., of Detroit. Three years ago W. F. Hill was taken into partnership. Mr. Hill for many years was Canadian representative

for the Good Manufacturing Co., of New York. One of the directors of the new organization is T. H. McLaren, known in the trade as "Bert" McLaren, who was for many years with the Galt Brass Co., Galt, Ont. Mr. McLaren is to have full charge of the valve department. Harry Baxter who, prior to going overseas, was with the James Roberston Co. and who recently has held an important office position with Crane Ltd., Toronto, will have charge of the accounting of the new firm.

The old firm has been for some time dealing in several plumbing specialties;



W. F. HILL,

for many years Canadian representative for the Good Mfg. Co., New York, and since 1918 in partnership with W. H. Cunningham, Toronto. Mr. Hill is a member of the incorporated firm which has just been formed under the name of W. H. Cunningham & Hill, Ltd.

they now are going into the specialty lines extensively and will carry well assorted stocks of all plumbers' specialties, such as rubber goods, etc. The specialty business will be under direct supervision of Mr. Hill.

They are also carrying large stocks of "Ubel" semi-rotating pumps and advise us that within a short time they will have a complete stock of other "Ubel" products, such as brass valves, stop cocks, etc.

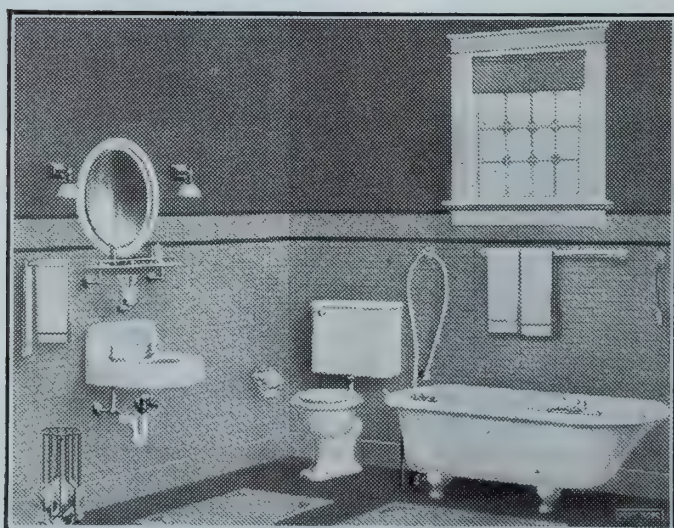
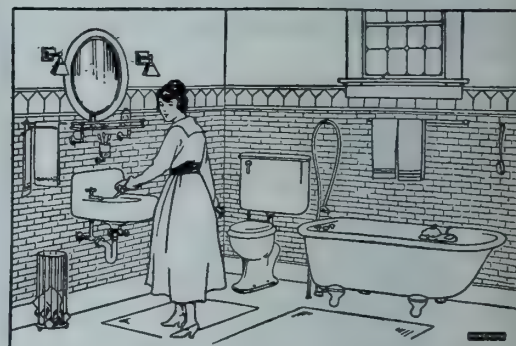
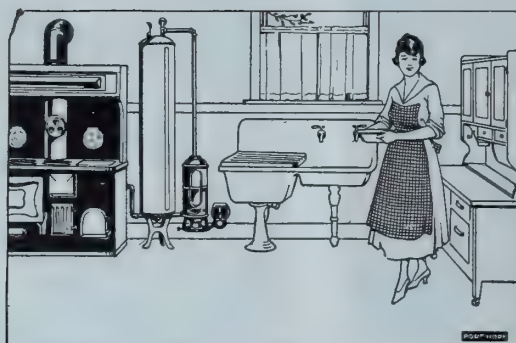
Until August, 1920, the business of W. H. Cunningham & Co. was carried on at 183 Church Street, Toronto. Larger quarters were subsequently secured at 269 Richmond Street West, where plenty of floor space is provided for expansion.



T. H. McLAREN,

known among the trade as "Bert" and formerly with the Galt Brass Co., Ltd., Galt, Ont., who has joined the firm of W. H. Cunningham & Hill, Ltd., Toronto.

Port Hope Mfg. Co. Co.



Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

operates With the Trade

SANITARY ENGINEERS, who advertise and would like an illustration to make their advertisements more attractive, will be furnished free of charge with any of the Cuts shown on the opposite page.

Write direct to the Company's
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Branches, stating whether the Cut
is to be used for Letter Heads or
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Mfg. Company, Limited

Head Office:

1012 ROYAL BANK BLDG., TORONTO

Montreal Office:

604 SOUTHAM BLDG.

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

St. Hyacinthe, Que.—Convent costing \$300,000 for Convent de la Presentation de Marie. Additional contracts are: plumbing and heating, J. A. Francoeur & Cie, 538 Fabre St.

* * *

St. Marc, Que.—Plumbing and heating contracts for school costing \$50,000 for School Commission are placed with J. A. R. Seguin, St. Hyacinthe, Que.

* * *

Hamilton, Ont.—Contracts for alterations to bank costing \$10,000 for Union Bank of Canada are: plumbing and heating, Stanton & Mitchell, 173 York St.

* * *

Hull, Que.—General contract for erection of store and garage for Dr. Ritchie, Main St., is placed with Ed. Monette, 60 Stirling Ave., Ottawa. L. Gendron, 89 Bridge St., Hull, has plumbing and heating contracts.

* * *

St. John, N.B.—Plumbing and heating contracts for dairy costing \$20,000 for Pacific Dairies, Ltd., are awarded to Jos. P. Henneberry, 62 Union Street.

* * *

Montreal, Que.—Additional contracts for alterations to building costing \$15,000 for Scottish Life Assurance Co., 22 St. John St., are: plumbing and heating, Ogilvy Bros., 441 Bleury St.

* * *

Additional contracts for stores and offices costing \$85,000 for University of Montreal, 185 St. Denis St., are: heating, J. J. Briand, 1277 St. Dominique St.

* * *

Toronto.—Additional contracts for manufacturing building costing \$100,000 for Aked & Co., Ltd., 1067 Ossington Ave.: plumbing, Sheppard & Abbott, 119 Harbord St.

* * *

Toronto.—Heating contracts for addition to factory costing \$20,000 for American Watch Case Co., of Toronto, 511 King St. W., are awarded to Mechanical Trades Co., 54 University Ave.

* * *

Sandwich, Ont.—Plumbing and heating contracts for residence costing \$15,600 for Alphonse Westman, Park Blvd., are awarded to Chas. W. Jessop, 619 London St. W.

* * *

Toronto, Ont.—Additional contracts for erection of residence costing \$25,000 on Forest Hill Road are: Plumbing and heating, B. J. Miller, 550 Bathurst St.

* * *

Penticton, B.C.—General contract for erection of residence costing \$5,700 for A. A. Swift is placed with Warnock & Thompson. A. D. Morgan has plumbing contract.

Montreal, Que.—Plumbing contracts for residence costing \$6,000 for Victor Cardinal, 2491 Cartier St., are awarded to A. Belair, 3088 St. Dominique St.

* * *

St. John, N.B.—Boys' Industrial Home costing \$30,000 for city and county councils: plumbing, R. E. Fitzgerald, 35 Dock St.

TO MANUFACTURE SANITARY MOIST AIR FURNACES

Ottawa, Ont.—Beeby & Aikins, Ltd., Jackson Bldg., Bank Street, were recently incorporated with an authorized capital of \$500,000. They intend to put a new line of stoves upon the market featuring the new patented Beeby "Unity" burner for gas. They will also manufacture a line of sanitary moist air furnaces and hope to begin operations in the old Marine Signal Building early in July. As a beginning some sixty men will be on the payroll, but the firm have high hopes that before long a total far in excess of that number will be necessary to make the number of stoves and furnaces required to fill orders.

NEW SCARBORO OFFICIAL COM- MENCES HIS WORK

W. J. Hamilton, recently appointed superintendent of Scarboro township water system, has commenced work. The work on the new waterworks system in the Birch Cliff section is proceeding rapidly. The public utilities commission s doing its best to locate offices for the water works department, but as yet has been unsuccessful.

MUNICIPAL STEAM HEATING

North Battleford.—North Battleford believes it has worked out a scheme for municipal steam heating that will work. Steam heat from its electric power house is offered for sale as a commodity at a reasonable rate.

Steam is a "by-product" of such electric power plants as we have in this country. The elements in our electric power are coal and water, the latter turned into steam by combustion of the coal and driving the engines which develop electric power. After the steam has so been used, to the fullest extent, it is allowed to escape.

North Battleford finds that it can, and is turning this by-product, formerly allowed to escape, into a source of profit which must go to reduce the cost of power there. It is advantageous in many ways. There is complete absence of dust and dirt, the expense and the wastefulness of individual heating plants is eliminated, the heat is uniform, and

there is reduction of fire hazard. In contrast with the plan of heating by electricity, which adds to the load upon the power plant at the very season when it is normally heaviest, the steam heating system requires and uses most steam at the time when the electric power load is at the peak and most steam is available.

BUREAU OF HEALTH DESCRIBES WAYS TO DISPOSE OF SEWAGE

With a large number of farmers modernizing their homes by the installation of sewage disposal systems, the Saskatchewan bureau of health has received a number of inquiries as to the regulations governing the treatment of sewage on farm homes. To meet this need for information a bulletin has been prepared and is just issued by the bureau.

The bulletin deals with the question in a very comprehensive manner and contains a number of diagrams illustrating the construction of various systems suitable for differing conditions, together with instructions concerning their installation and hints on successful operation.

During the past year systems of sewage disposal in actual use at 72 farms in different parts of the province have been investigated by officials of the bureau, and the conclusions arrived at following this investigation are incorporated in the pamphlet.

"Experience has shown," said Dr. Seymour, commissioner of public health of Saskatchewan, "that a system of sewage disposal which could be left to run itself on a farm in the eastern provinces will not prove so accommodating if installed in Saskatchewan where the subsoil is for the greater part a still, non-absorbent clay, where creeks or water-courses are almost unknown and where the frost can be relied upon to penetrate six feet into the ground each winter."

NEW PUMPS AT WATERWORKS

Montreal.—Two new 30,000,000 gallon electrical pumps have been installed at the low level pumping station of the Montreal waterworks. With these added to the electric unit that has been in operation for the past two years, 75,000,000 gallons will be delivered daily. It may be necessary to use some of the steam units, but the majority of the steam pumps will be held in reserve, and used only in case of emergency. At present the filtration plant has a capacity of about 50,000,000 gallons per day, and when new additions are installed, at a cost of about \$2,000,000, it is expected that about 120,000,000 gallons will pass through the beds daily.

TIMMINS SEWAGE DISPOSAL

Timmins, Ont.—J. F. Henderson, town engineer, will visit a number of centres, including Brampton and Woodstock, to inspect the sewage disposal plants there, in connection with the installation of a similar system in this town.

NEW PLUMBING GOODS

"SPECO" FOR SOLDERING

The Special Chemicals Co., Highland Park, Ill., are manufacturing and are shortly placing on the Canadian market a new form of sal ammoniac for cleaning and tinning soldering irons, called "Speco." It is said to be the only completely fused form of sal ammoniac. The makers claim that it is supplanting the crystalline form of lump sal ammoniac with its dirt, waste and inconvenience. In Speco the crystals are



"Speco" for Soldering

made into a solid block without binder or undesirable foreign substance, it is stated, and one pound of Speco is said to go as far as five times as much lump sal ammoniac.

It is put up in $\frac{1}{2}$ and 1-pound cakes in individual cartons and is claimed to be unaffected by atmospheric conditions, to keep indefinitely, is odorless and can be carried without danger of rusting tools.

POST DRILL CHUCK

A new post drill chuck has been put on the market by the manufacturers, E. C. Stearns & Co., Syracuse, N. Y.

This chuck (styled No. 1) has a regu-



No. 1 Post Drill Chuck

lar $\frac{1}{2}$ inch straight shank to fit blacksmith's post drills. A square milled socket takes regular bit shank twist drills, which are kept from falling out by a friction spring.

INVENTS REFRIGERATOR MACHINE

An invention of an artificial refrigeration system which is said to have been pronounced by experts to be of great value, has been perfected by a young Toronto engineer, Forbes Keith, of Keith's, Limited. Mr. Keith is said to have received very attractive offers for the American rights from two big United States corporations.

The new machine uses what is known technically as the "absorption" principle and its action consists in the alternate evaporation and condensation of ammonia gas. The gas given off through the evaporation is absorbed in a tank of water. When all is evaporated a tilting of the machine through the action of gravity closes an electric switch controlling an electric heater in the tank of water, the heat from which drives the gas out of the water back to the evaporation chamber, where it condenses into liquid, the machine tilts automatically back to its original position and the process starts over again.

With weather of 80 to 90 degrees, the inventor claims that his machine will maintain temperatures in the refrigerator ranging from 38 to 46 degrees.

BIG BUSINESS IN PIPELESS FURNACES

Big business in pipeless furnaces is reported by L. H. Eckardt, plumber, of Ingersoll.

METAL WORKERS OPEN CONVENTION

Hamilton, Ont.—The Amalgamated Iron, Steel and Tin Workers of America have opened their forty-sixth convention. This is the first time it has been held in Canada. About 175 delegates from various parts of Canada and the United States were present, and the session was featured by addresses by Mayor Copley; W. R. Dryman, president of the Chamber of Commerce; Hon. W. R. Rollo, Minister of Labor in the Ontario Cabinet, and G. Fester, representing the Trades and Labor Council.

ANNUAL MEETING OF MARITIME BRANCH C. M. A.

The annual meeting of the Maritime Division of the Canadian Manufacturers' Association was held in St. John, N.B., for one day, concluding with a complimentary dinner tendered J. E. Walsh, manager of the C.M.A., by the Maritime members. W. S. Fisher was nominated for election to the presidency of the C. M.A. the annual general meeting to be held in Quebec on June 7, 8, and 9. L. W. Simms, T. S. Simms Co., Ltd., St. John, was elected chairman; vice-chairmen include: C. S. Sutherland, J. A. Marven, J. E. McLurg; secretary, H. R. Thompson. Mayor Schofield, of St. John, president of the Schofield Paper Co., selling agents for the E. B. Eddy Co., Ltd., was a speaker. Mr. Walsh traced the development of the organization which will celebrate its fiftieth anniversary at the forthcoming general meeting, with a membership of 4,200.

DETAILS FOR VENTILATION

(Continued from page 21)

The tee bar can be made similar as at A with part of the lower web cut so the other part can be bent up in riveting to the pipe as shown in the sectional side view.

If there should be a tendency to sag, angle iron braces as at B can easily be added. The end view and plan give additional views of the damper and its operation by means of the pulley bracket E which acts as a stop for the damper, and for attaching the pulley.

If necessary a counterbalance weight can be easily arranged for. To prevent the damper from twisting an angle iron F can be stretched to the curve of the pipe and riveted on as shown in plan. Other tradesmen may have other ideas on this subject, but it all hinges on the question of working satisfactorily.

For a square or rectangular damper 7 by 8 feet a similar treatment can be followed by making the damper in two pieces. If desired two extra pivots can be used in place of one pivot as in a full damper.

This would be nothing more than two dampers on a pivot in the one pipe, and set so they will close and still not interfere. At times, a lifting bar, as at N, is found satisfactory. But for a heavy damper, this would be rather hard in raising and lowering unless a double block and tackle arrangement is used. The lifting bar N is made of angle iron with a curve bent on the end. This prevents the bar from sticking as it lowers. A hinge is riveted to the top and to the damper.

The damper ordinarily would be encircled with angle iron reinforcement. But this makes a rather heavy job for raising and lowering, but still it must be reinforced to prevent the metal from sagging.

CATALOGUES AND BOOKLETS.

BLOW TORCHES

A folder issued by Joseph Breeden & Co., Ltd., Birmingham, England, illustrates and describes the gasoline blow torch made by this firm. Simplicity is the key note claimed for this torch, and it is stated to give a powerful and efficient flame that will stand high wind pressure. No wind screen is used. The folder shows all the replacement parts which can be supplied separately. The Canadian agents are W. H. Cunningham & Co., 269 West Richmond St., Toronto, Ont., from whom booklet and particulars can be obtained.

A. B. JARDINE & CO., LTD.

A new catalog and discount sheet has been issued by A. B. Jardine & Co., Ltd., Hespeler, Ont., manufacturers of blacksmiths' and machinists' and boiler makers' tools and machinery. New lines have been added since the previous catalog was issued and included in these are automobile sets of taps and dies, grinders, and disc sharpeners. Particular attention is called to the alteration or change in threads and all sets of taps and dies as well as separate dies and separate taps are now supplied in U.S. standard thread unless otherwise ordered. A copy of catalog and list will be sent on request.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

A DOWNWARD trend is evident on prices of many plumbing and steamfitting supplies. Chief among the declines noted are new quotations on corrugated sheets, conductor pipe and eavestrough. Lapweld boiler tubes and standard compression work are also reduced.

Some price cutting is indicated in certain districts on range boilers, but a revision in quotations is expected shortly. A firmer tone in lead is evident but no changes are reported on the primary lead and zinc products. Pipe fittings remain steady

and wrought pipe is also quiet. Sheets and plates still hold at previous levels, but bar iron and steel show an unsettled state, with a slight tendency to reduce.

Soil pipe and cotton waste are unchanged in price. Some revision in waste material quotations have been noted, but the market continues dull. Lead features the ingot metal situation, with a firmer tone. Business is reported to be improving; collections are fair and wholesalers are generally adopting a more optimistic outlook.

MONTREAL MARKETS

MONTREAL, May 13.—Price tendencies on many lines of plumbing supplies are downward, chief among them being a drastic cut on range boilers. The 30-gallon standard boiler is now quoted in some quarters at \$8.75. A new price list is expected in the next few days with a readjustment on present quotations as they are considered much below value and are the result of recent price cutting. Eavestrough, conductor pipe and corrugated sheets also feature lines of galvanized sheet manufacture. Eavestrough, etc., has new lower discounts, while corrugated sheets are now selling under a new list with a reduction made. Enamelled ware continues unsettled and an extra 10 per cent. is given on practically all lines. Standard compression goods also show a reduction and are quoted at 37 per cent. off. Lapweld boiler tubes have been revised and lower prices are obtainable. Pipe, pipe fittings, bar iron and steel, sheets, soil pipe, and cotton waste are unchanged, while lead products are very firm. Lead also features the ingot markets.

Range Boiler Prices Withdraw

Montreal.

A price list on the different sizes and weights of range boilers is not obtainable at time of going to press, but it is understood that a drastic cut has been made in quotations, with the 30 gallon standard boiler quoted by some dealers at \$8.75. This price is considered much below the value, and a readjustment is expected in the next few days. Undoubtedly the recent unsettled market on boilers, especially on this size which is the big seller, has resulted in the extremely low levels now reached. The new list will in all probability be given out within the next week.

Sheet Quotations Unchanged

Montreal.

Prices on all sheets remain unchanged, and little improvement in business is noted. The United States mills still report very little new business from the recent adjustment in prices. The new tariff changes burden the importer with approximately an extra 5 per cent., but

this will have little effect on present prices other than causing the chances of further declines to be more remote. A steady market is looked for with the following quotations ruling:

PLATES—

10 gauge	5 25	6 25
12 gauge	5 30	6 30
14 gauge	5 45	6 45
16 gauge	5 55	6 55

BLACK SHEETS—

14 gauge	5 45	6 45
16 gauge	5 55	6 55
18-20 gauge	6 15	7 15
22-24 gauge	6 25	7 25
26 gauge	6 35	7 35
28 gauge	6 50	7 50

Sheets 36 in. wide, 10c per 100 lbs. extra.

GALVANIZED SHEETS—

U.S. Standard—

10 $\frac{1}{4}$ oz.	8 75	9 75
28 gauge	8 25	9 25
26 gauge	8 00	9 00
22 and 24 gauge	7 85	8 85
20 gauge	7 65	8 65
18 gauge	7 55	8 55
16 gauge	7 50	8 50

English Standard—

28 gauge	10 00	9 25
26 gauge	9 75	9 00
24 gauge	8 15	8 60
22 gauge	8 80	8 15
18 and 20 gauge	8 10	8 00

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Soil Pipe Unchanged

Montreal.

No change has been made in the discounts on soil pipe or fittings, the following prices ruling:

SOIL PIPE (medium and extra heavy)—

2, 3, 15%; 5 and 6-inch, 20% discount.
4-inch, 25% discount.
8 inch, add 20% to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Pipe Held at New List

Montreal.

No further change has been made in wrought iron and steel pipe since list No. 51 came into effect. Stocks are now in good shape throughout the different warehouses, and sales are said to be irregular with little improvement shown. Following is the selling basis:

Price List No. 51. April 25th, 1921.
Standard Butt Weld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
$\frac{1}{8}$ in.	\$ 6 50	\$ 8 50	\$	\$
$\frac{1}{4}$ in.	4 71	6 81	5 91	8 01
$\frac{3}{8}$ in.	4 71	6 81	5 91	8 01
$\frac{1}{2}$ in.	6 16	7 78	7 95	9 48
$\frac{3}{4}$ in.	7 42	9 49	9 95	12 02
1 in.	10 63	13 69	14 37	17 43
$1\frac{1}{4}$ in.	14 38	18 52	19 44	23 58
$1\frac{1}{2}$ in.	17 19	22 14	23 24	28 19
2 in.	23 13	29 79	31 27	37 93
$2\frac{1}{2}$ in.	36 56	47 09	.....	.....
3 in.	47 81	61 58	.....	.....
$3\frac{1}{2}$ in.	63 02	79 58	.....	.....
4 in.	74 67	94 29	.....	.....

Standard Lap Weld Pipe S/C
Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$26 83	\$33 49	\$34 97	\$41 63
$2\frac{1}{2}$ in.	40 07	50 60	52 94	63 47
3 in.	52 40	66 17	69 23	83 00
$3\frac{1}{2}$ in.	63 94	80 50	84 18	100 74
4 in.	75 76	95 38	99 74	119 36
$4\frac{1}{2}$ in.	85 73	108 59	1 16	1 39
5 in.	99 90	126 54	1 35	1 62
6 in.	1 30	1 64	1 76	2 10
7 in.	1 75	2 23	2 32	2 75
8 in.	1 84	2 34	2 44	2 89
10 in.	2 12	2 69	2 81	3 33
12 in.	2 54	3 23	3 36	3 98
10L in.	2 35	2 99	3 12	3 70
10 in.	3 03	3 85	4 02	4 76

No Change in Oakum

Montreal.

Quotations on plumbers' oakum re-

main unchanged this week at \$3.75 per 50 pound bale, and 10 cents per pound for less quantities.

Radiation and Boilers

Montreal.

Lists and discounts are holding on both radiators and boilers, with little change noted in sales. Hot water is quoted at 48 per cent. off list, steam 49 off, wall radiators 45 off. Boilers are quoted according to shape and fittings. Any advance in sales will depend largely on building construction in the following summer months, and at this time dealers would prefer to see a much stronger tone develop. Quotations are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount. 48% for hot water and 49% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 55% off list.

Square or sectional hot water or steam boilers, 15-in., 5%.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in. to 36-in., 5% off list.

Square or sectional steam boilers, 19-in. to 36-in., 5%. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10%.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Waste Prices Hold

Montreal.

Cotton waste remains unchanged in price on all lines, with the demand slowly improving. Following are quotations: Cream, Polishing 0 22

WHITE

XXX	0 18½
XX	0 17½
X	0 16½
XLCR	0 16½
X Empire	0 15
X Press	0 13½
6X Special	0 12

COLORED

Fancy	0 15
Lion	0 13½
Popular	0 10½
Keen	0 09

WOOL PACKING

Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS Washed and Sterilized.

quantity.	
White Cotton	0 23
Colored Cotton	0 18
Above lines subject to trade discount for	

Wares Unsettled: Lower Price

Montreal.

Very little improvement in the situation on enamelled ware is reported, and one wholesaler states they are selling on an open market. However, the general quotations are 10 per cent. off prices quoted below. It is evident that price cutting still exists among the wholesalers. Whether extra business is being obtained through these cuts seems doubtful, as buying continues light. A new price list may be obtainable in the near future, depending of course on a settlement being made. Following are the old net prices less 10 per cent.:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$6 00 \$5 92 \$5 84
18 x 30	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories—	
17x19" Apron F139 or P4045	12 24
18x24" Apron F154 or P3845 or P3847	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345	10 08
Less 10%.	

Closets Also Easier

Montreal.

Although the discount of 10 per cent. is not shown on closets, the condition on these is much the same as on enamelled ware, with lower prices given by the different jobbers. Following are quotations:

Closet, standard outfit	32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

Boiler Tubes Revised

Montreal.

A revision is made on practically all sizes of the lapweld boiler tubes, lower quotations resulting. The reduction is variable, the best selling tubes suffering less than others. This is done in an effort to move the slow sellers, as repair work seems to be the only factor causing a movement in these. Following are the revised prices:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	25 00
1¼ inch	27 25	26 00
1½ inch	26 25	27 00
1¾ inch	29 75	27 00
2 inch	29 25	22 90
2¼ inch	33 00	26 00
2½ inch	44 75	28 00
3 inch	49 25	35 00
3½ inch	63 50	40 75
4 inch	85 00	51 75

New Discounts on Eavestrough

Montreal.

Eavestrough, conductor pipe and conductor pipe elbows have been reduced approximately 5 per cent. through a change in discounts. Troughing and conductor pipe is now quoted at 60 off list, elbows 55 off. The former discounts were 50/10 and 50 respectively. These lines are now selling well, with stocks in good shape to meet the increased demand. The list with new discounts is as follows:

EAVETROUGH—			
O.G. Square Bead—			
	Per 100 ft.		Per 100 ft.
8 in.	15 90	15 inch	28 80
10 in.	17 70	18 inch	36 80
12 in.	21 20		
O.G. Round, and Half Round—			
8 in.	16 90	15 inch.	29 80
10 in.	18 70	18 inch	37 80
12 in.	22 20		
Discount 60% off list.			

CONDUCTOR PIPE—	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00
Discount 60% off list.	
CONDUCTOR ELBOWS—	
Plain round or round corrugated—	
2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00
Discount 55%.	

Iron and Steel Bars Slow

Montreal.

Iron and steel bars are held unchanged, and buying continues light. It is stated that some lines of steel products can be laid down 50 cents a ton cheaper from Belgium than from the United States mills, considering the present rate of exchange. Local stocks are ample, with little change looked for at present. Following are quotations:

Common bar iron, 100 lbs.	3 70
Refined iron	5 20
Iron finish machinery steel	3 75
Mild steel	3 70
Single reeled machinery steel	5 75
Band steel	3 70
Spring steel	5 00
Sleighshoe steel	3 70
Tire steel	3 90
Toe calk steel	4 60
Harrow tooth steel	3 85
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb.	0 23

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Compression Goods Lower

Montreal.

Standard compression work, also standard flat and round way stop and wastes, are now quoted at 37 per cent. off list; the former discount being 34 per cent. Other lines of brass bibbs, valves and cocks are holding unchanged, although an unsettled feeling still exists and lower prices are not improbable on many other lines. Following are quotations:

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	25%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	37%
Roundway stop and waste cocks, standard	37%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%

Globe, angle and check valves, standard	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10%

New List on Corrugated

Montreal.

Corrugated sheets are now selling under a new list, showing reductions on all gauges. The best selling weight, 28 gauge, was formerly \$9.50, and is now listed at \$8.50 with the same discount. Heavier gauges show a bigger reduction. Following is the new price list:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	15 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 1½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

Waste Materials Listless

Montreal.

Little actual business is being done in scrap metals, although recent inquiries coming to hand have offered some encouragement. All metals are more or less listless, with no actual changes with the exception of lead. This metal is slightly higher, no doubt following the exception of lead, which is at present very strong on the primary markets. Quotations are as follows:

Dealer's Buying Prices.	
Automobile tires	0 75
Yellow brass	0 05
Red brass	0.08½
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 07¾
Heavy copper	0 10½
Wrought iron, R. Rd., No. 1 per gr. ton	12 00
Malleable scrap (ton)	11 50
Pipe scrap (ton)	8 00
Heavy melting steel	8 50
No. 2 busheling,	4 00
Boiler plate	0 08
Boiler plate	0 10
No. 1 machinery cast	24 00

Lead Products Firm

Montreal.

No price changes are made on the different lead products this week, but the market is very firm and higher prices on most lines would not be surprising in the near future. Pig lead in the primary markets continues to show strength, with a substantial advance made this week. Present prices are as follows:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	40% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., wiping, lb.	0 22¾
Do., wire, lb.	0 35
Zinc, sheets, casks	0 13
Do., broken lots	0 13½

Pipe Fittings Hold

Montreal.

No change has been made in quotations on the different lines of pipe fittings since the decline of a few weeks ago. Sales are rather irregular, one week showing a fairly heavy demand, while the week following sales are reported small. Stocks are in good shape in all sizes. Quotations are the following:

Cast iron fittings	20%
Bushings, cast	30%
Do., malleable	30%
Flanges	27%
Plugs	22½%
Flange Unions	20%
Maleable Unions	40%
Dart Unions, black	29%
Do., galvanized	8%
Nipples, ½ to 4" close and short.	40%
Do., long	50%
Do., 4½ to 8" close and short.	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	Blk. Galv.
Class B	0 20 0 28
Class C	0 13 0 20
Add 10%.	

Lead Features Ingots

Montreal.

The chief feature of the ingot metal markets this week is the further advance in lead, which continues strong with indications of going higher. There is not much change in the other metals, the list generally remaining firm.

TIN.—The market on tin in London is somewhat irregular, but holds very well considering the continued strike. It is felt that when this is settled there should be an upward movement. The market here is firm with no change in quotations at 40 cents.

COPPER.—Copper is slightly firmer both in London and New York, standard having touched the same level as electro in London. While the market is steady no immediate advance is looked for. Electro is quoted at 18 cents, casting at 17½ cents.

SPELTER.—This metal seems to be marking time for the present, with

prices practically unchanged both in London and East St. Louis. Until the situation with regard to German spelter is a little clearer, there will not likely be much change. Local price unchanged at 8½ cents.

LEAD.—Lead has been very firm both in London and the U. S. A.; the trust price was again advanced 5 cents, East St. Louis, this being one per cent per pound above the low point. London has also touched the highest point since early in the year and the situation appears very strong at present. There is no scarcity of lead in this country, and the market has advanced in line with foreign prices, now quoted at 7¼ cents.

ANTIMONY.—Antimony is slightly more active with little change in prices. Chinese is quoted at 7¼ cents, high grade English 8½ cents.

ALUMINUM. — This metal remains dull on the market, with no change in price, quotations being 34 cents.

TORONTO MARKETS

TORONTO, May 13.—Reductions are the outstanding feature of the markets, but the changes are generally not large and are chiefly confined to revisions in discounts. Prominent among the declines are the lower prices on corrugated sheets and standard compression work.

Lower quotations are also announced on eavestrough, conductor pipe and conductor elbows, and also in lapweld boiler tubes. A firmer tone in lead is evident, with no change in the prices of the primary lead or zinc products.

Wrought pipe is quiet following the reductions recently announced in list No. 51, and no change is shown in sheets or plates. Bar steel remains unsettled, while improved sales in range boilers are reported and some revision in quotations is expected shortly. Pipe fittings remain steady, and there have been some price changes noted in waste materials, but these are still very dull. Ingot metals are generally at previous levels, with lead slightly more active.

Enamelled Ware Steady

Toronto.

The reductions recently made in enamelled ware lists have resulted in a slightly better demand. But sales are generally below expectations, and much lower than this time last season. Some improvement is anticipated, however, should any marked building activity become apparent within the next few months. Following are the present lists.

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16 25
Do., do., 5½ ft., net.	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F164 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205.	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345.	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20/10% off these prices.	

Oil and Turps Higher

Toronto.

Activity is apparent in white lead in oil, but no change has been reported in quotations. Red and dry lead show no change; but turpentine and linseed oil have both advanced. Turpentine is especially active, now being quoted at \$1.15 per imperial gallon on one barrel lots. Linseed oil shows an unsettled state, the price now having reached 85 for raw, and 88 cents per gallon for boiled on one to two barrel lots.

Closet Prices Unchanged

Toronto.

Very little new business is reported in closet fixtures, and no changes in prices have been announced. Nominal quotations remain as follows:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl.	7 00

Do., for 3/4 in. valve on supply pipe.....	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud.....	12 75
Do., siphon jet bowl, less spud.....	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., white vitro, vitreous china, or enam- eled iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover.....	4 75
Do., add for bar hinge	0 40

Radiators Unchanged

Toronto.
The demand for radiators remains practically unchanged, and the active promotion of new building is needed to stimulate sales. No changes in lists or discounts are reported—48 per cent. for hot water and 49 for steam are still current quotations, with 45 per cent. off wall list. Prices are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount 48% for hot water and 49% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 45%.

Cotton Waste Steady

Toronto.
Cotton waste remains unchanged this week, with just a slight increase in the demand. Present quotations follow:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 21
XX	0 19 1/2
X	0 17 1/2
XX, grad.	0 17 1/2
XLCR	0 16 1/2
X Empire	0 16
X Press	0 13 1/2
XC	0 16 1/2
COLORED	
No. 1	0 14 1/2
No. 7	0 13 1/2
No. 1A	0 12 1/2
No. 1B	0 11 1/2
Fancy	0 15
Lion	0 13 1/2
Standard	0 12
Popular	0 10 1/2
Keen	0 09
Above lines subject to trade discount for quantity.	

Asbestos Products Firm

Toronto.
A little better movement in asbestos products has been reported; but the asbestos situation is practically staple, with no prospect of any immediate reductions. Dealers generally are now developing a more optimistic tone.

Cutting Evident in Boiler Price

Toronto.
General unsettlement in prices on range boilers is evident on local markets. Reports indicate some cutting in various quarters, with quotations much below previous figures. The 30 gallon standard boiler was reduced last week to \$12, but some dealers are now reported to be quoting as low as \$9. This is stated to be below normal value, and a revision in quotations is expected to be announced shortly. The current list has been withdrawn.

Bar Steel Unsettled

Toronto.
Even the recent wage reduction announced by the United States Steel Corporation has not stimulated any marked activity among local buying centres in bar iron and steel; and it is considered problematical whether this result will immediately be apparent, as some little time must elapse before price adjustments can be made effective. In some few cases dealers have been inclined to quote lower prices on a few grades, and a range is shown. Reductions are stated to be in effect in some quarters, but anticipated price changes of this nature are not generally in order. The labor and political situation in Britain has had the effect of further unsettling the metal markets, and some purchasers are inclined to hold off in the expectation of a corresponding drop in the scale of quotations. Following are the average prices at present:

IRON AND STEEL	
Common bar steel, 3-16 in. and lighter ...	\$ 4 50
Do., 1/4 in. and heavier	5 75
Common bar iron, 3-16 in. and lighter ...	4 50
Do., 1/4 in. and heavier	4 00
Angle base	4 10
Horseshoe iron	4 10
Tire Steel	4 70 5 95
Band steel	4 50
Jenkins Globe	10/10%
Mining drill steel	23 00
Crucible cast sheet steel	30 00 35 00
Sheet cast steel	35 00
Sleighshoe steel	4 10 4 50
Norway iron	15 00
Toe caulk iron	5 40 6 70
Hoop steel	6 00

Corrugated Sheets Lower

Toronto.
Reductions of a fairly substantial nature are evident in the prices of corrugated sheets. Business is still reported as showing a gradual tendency toward seasonable improvement, and the brighter vein is expected to continue. The new quotations are as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	13 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 7 1/2%.	

Lapweld Tubes Reduced

Toronto.
Some slight reductions on lapweld boiler tubes are announced this week; the changes being variable on sizes from 1 3/4-inch to 4-inch. Prices on seamless tubes remain unchanged. Following are the revised quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1 1/4 inch	27 25	.....
1 1/2 inch	26 25	.....
1 3/4 inch	29 75	25 00
2 inch	29 25	22 00
2 1/4 inch	33 00	25 00
2 1/2 inch	41 75	27 00
3 inch	49 25	35 00
3 1/2 inch	63 50	40 00
4 inch	85 00	50 25

Brass Goods Reduced

Toronto.
The expected readjustments and reductions in some lines of compression work have been made. These changes consist of increases in the discounts on current list, and affect standard compression work, compression bath cocks and

some lines of valves and basin cocks. Signs that business is inclined to open up a little have not been wanting, and it is expected that these reductions will help in stimulating activity among brass goods. The new quotations are given as follows:

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	29%
Do., Fuller	25%
Flatway stop and waste cocks, standard	40%
Roundaway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	20%
J.M.T. C.	25%
J.M.T. Gate Valves	15%
Gate or straightway	16/10%
Jenkins Globe	10%
Radiator valves, standard	23%
Do., removable discs	38%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%

Pipe and Eavestrough Lower

Toronto.
New quotations showing a reduction in the prices of conductor pipe and eavestrough are announced this week. Elbows and shoes are now 55 per cent. off list, while conductor pipe and eavestrough, ridge roll and valley, are now 60 per cent. off. list The previous quotation was only 50 per cent.

Reports indicate that there is a fair demand for these products, but this is generally considered as seasonable and chiefly due to spring building activity. Prices are as follows:

TROUGH (Eave)		
O. G., Square Bead and half round. Size in girth:	Per 100 ft.	Per 100 ft.
8-in.	\$15 90	15-in. \$28 80
10-in.	17 70	18-in. 36 50
12-in.	21 20	
Less 60%.		

PIPE (Conductor)	
Plain, round or corrugated.	
	Per 100 ft. in 10-ft. lengths
2 in., list	\$18 40
3 in., list	22 30
4 in., list	29 60
5 in., list	40 00
6 in., list	49 00
Less 60%.	

Firmer Tone in Lead

Toronto.
The lead market has evidently developed a firmer tone during the past week and local lead quotations advanced a little.

Zinc is also on the upward trend, and the market promises to continue steady, while business is reported as showing a fairly strong activity.

Prices of the primary lead and zinc products, however, continue unchanged, as follows:

Lead pipe, list, per lb.	0 12 1/2
Lead waste pipe, list, per lb.	0 13 1/2
Do., over 8 in., list, per lb.	0 14 1/2
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09 1/2
Cut sheets 1/2 c to 3/4 c lb. extra and cut sheets to size 1 c lb. extra.	
Solder, wire, lb.	0 34
Do., 40-60	0 26 1/2 0 28
Do., 50-50	0 29 0 31
Do., strictly, lb.	0 24
Do., commercial, lb.	0 22
Do., guaranteed, lb.	0 27
Do., wiping, lb.	0 22
Zinc sheets, per lb.	0 16
Calking lead	0 08 0 09

Wrought Pipe Quiet

Toronto.
Quietness continues to be apparent in the pipe market, and prices for both

wrought and steel tubing remain at the reductions recently announced in List No. 51.

Jobbers are reported to be doing a larger business, but pipe mill operations are rather irregular, and the outlook for future activity appears to be in doubt.

No Change in Plates

Toronto.

Buying in plates and sheets is still reported to be light, with sales fairly numerous but small. Quotations continue to show a range, with prospective signs of brightening in the future. The opinion has been expressed that the development of buying power is necessary before an improvement in present market conditions, or decided increase in volume of transactions, will be produced.

A gradual development along such lines is expected to produce improvement in many primary lines, and among the principal, of course, are sheets and plates. The following are current local quotations:

BLACK SHEETS		
14 gauge	5 10	6 10
16 gauge	5 20	6 20
18-20 gauge	5 75	6 75
22-24 gauge	5 80	6 80
26 gauge	5 85	6 85
28 gauge	6 00	7 00
PLATES		
10 gauge plate	5 00	6 00
12 gauge	5 05	6 05
14 gauge	5 10	6 10
16 gauge	5 20	6 20

GALVANIZED SHEETS		
Premier and Apollo		
10 3/4 oz.	8 60	9 60
U.S. 28 gauge	8 20	9 20
U.S. 26 gauge	7 90	8 90
22 and 24 gauge	7 35	8 75
18 and 20 gauge	7 60	8 60
16 gauge	7 45	8 45
12 and 14 gauge	7 40	8 40

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 8 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Pipe Fittings Steady

Toronto.

Quotations on pipe fittings again remain unchanged, and the same remark can be applied to general conditions. No marked increase has been recorded, but an expectant attitude has been adopted by the more optimistic dealers. Current prices follow:

Cast iron fittings	20%
Plugs, cast	27 1/2%
Do., solid	10%
Do., countersunk	Net list
Bushings	30%
Unions, 1/4 in. to 2 in.	40%
Do., 1/2 in., 2 1/2 in. to 4 in.	35%
Dart-Unions, blk., 1/4 in. to 2 in.	29%
Do., 1/2 in., 2 1/2 in. to 4 in.	14%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4 1/2" and larger	30%
Long, 4" and under	50%
Do., 4 1/2" and larger	40%
Running thread, 4" and under	20%
Do., 4 1/2" and larger	
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4 1/2" and larger	Net
MALLEABLE FITTINGS	
Class A	0 60 0 75
Class B	0 23 0 32 1/2
Class C	0 15 0 25

Revision in Waste

Toronto.

In the waste market some brighter signs have been evident but very little improvement is generally shown. Nominal changes in some prices have been made, but conditions generally remain the same, with nothing of a special nature to record.

Local activity has been chiefly confined to the buying of cast iron scrap by foundries, who, it is reported, are not operating up to 50 per cent. capacity. The lower prices in pig iron have resulted in dealers being adverse to offering as much for cast scrap as formerly.

White metals have been firm, and the demand has slightly improved. The scrap rubber situation is at a standstill at present. Local dealers report conditions to be very quiet. Prices for fair-sized quantities, which contain a few revisions, follow:

WASTE MATERIAL

No. 2 busheling	13 00
Stove plate, per ton	18 00
Scrap pipe	8 00
Yellow brass	6 50
Red brass	10 00
No. 1 machinery cast	2 250
Heavy melting steel	13 50
Heavy copper	10 50
Light copper	8 00
Scrap zinc	4 00
Light brass	4 00
R.Rd. wrought iron, No. 1, per gr. ton	13 50
Heavy lead	4 00
Old rubbers, boots and shoes	2 00
Overshoes, lumbermen's rub. boots	2 00
Bicycle tires	0 75
Automobile tires	0 50
Tea lead	1 75

Ingot Metals Steady

Toronto.

The general situation in ingot metals remains the same and a dull outlook is the prospect here. United States and British markets have recently shown a revival of activity in copper and tin, with lead and zinc movements remain-

ing around previous levels. Some slight changes have been recorded in local prices but are not of sufficient degree to indicate market conditions.

TIN.—The upward trend of the market is still apparent and this feeling is reflected in a one-cent increase in local quotations, the price now being 38 1/2 cents. Local business is generally reported small.

COPPER.—The foreign copper market has taken on a more active appearance, and with Japanese, British and French purchases pending, the United States dealers are looking for an advance. In some quarters prices are reported to be a little higher, but local quotations still remain at 18 cents.

LEAD.—Activity in the lead market is the keynote of the ingot metal situation at this time. An increase in quotations from \$6.25 to \$6.50 has been recorded here, while foreign markets interpret conditions to mean another advance in the near future.

SPELTER.—Outside markets in this metal continue to be a little erratic. Buying is again reported to be very light and the quiet spell generally continues. Prices locally advanced to \$7.50, an increase of 25 cents over last week's quotation.

ANTIMONY.—This market is still firm, but generally less active than was previously reported. Quotations here remained unchanged at from 8 to 10 cents.

ALUMINUM.—The steady improvement in the automotive industry has been productive of a better feeling in aluminum circles. More inquiries have been received, and the price of 30 cents is still holding on local markets.

WINNIPEG MARKETS

WINNIPEG, May 13.—Reductions in wrought iron pipe form the outstanding feature of this week's market. Soil pipe and fittings also have lower revised prices. Cotton waste remains at the same figures, and lead products are also holding firm.

Galvanized range boilers are still held at the recent decline, and reductions have also been recorded on candle wick packing, sheet zinc and tin plate.

Business in plumbing and steamfitting lines is reported to be improving, and wholesalers are generally hopeful for the future. Collections are coming in fairly well.

Tin Plate Reduced

Winnipeg.

The prices have been lowered on tin plate and following are the new quotations:

In Full Boxes—		Per Box
IC 20 x 28		\$23 75
IC 20 x 33		28 50
IX 20 x 28		27 00
IX 20 x 33		33 50

In Half Boxes—		
IC 20 x 28		\$12 50
IC 20 x 33		14 75
IC 20 x 39		18 00
IX 20 x 28		14 00
IX 20 x 33		17 25
IX 20 x 39		20 50

New Prices on Wrought Pipe

Winnipeg.

The new prices for wrought iron pipe mentioned in the last issue of the Sani-



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American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip"
Brass Rod; Brass and Copper Tubing; Forgings and Castings
in Brass, Bronze and Aluminum; Die Castings in White
Metal and Aluminum; also Screw Machined Products

tary Engineer have since been received and are given below:

BLACK PIPE						
F.O.B.						
Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.	
		[Add to Winnipeg price.]				
1/8	6.21	\$ 0.30	\$ 0.20	\$ 0.17	\$ 0.11	
1/4	5.31	0.53	0.34	0.30	0.19	
3/8	5.45	0.70	0.45	0.40	0.26	
1/2	7.25	1.05	0.67	0.59	0.38	
3/4	8.73	1.40	0.90	0.79	0.51	
1	12.56	2.08	1.34	1.17	0.75	
1 1/4	17.01	2.80	1.80	1.57	1.00	
1 1/2	20.34	3.35	2.15	1.88	1.21	
2	27.36	4.50	2.88	2.52	1.62	
2 1/2	44.37	7.18	4.60	4.02	2.68	
3	58.01	9.42	6.03	5.28	3.39	
3 1/2	76.05	11.25	7.20	6.30	4.05	
4	90.00	12.33	8.53	7.46	4.80	
4 1/2	101.70	15.61	10.04	8.75	5.62	
5	118.80	18.12	11.60	10.15	6.52	
6	154.80	23.45	15.00	13.14	8.44	
7	234.00	29.09	18.62	16.28	10.46	
8L	245.70	31.25	20.00	17.50	11.25	
9	338.40	42.20	29.96	23.59	15.16	
10L	314.10	40.00	25.60	22.40	14.40	

GALVANIZED PIPE						
1/8	8.69	\$ 0.30	\$ 0.20	\$ 0.17	\$ 0.11	
1/4	7.61	0.53	0.34	0.30	0.19	
3/8	7.79	0.70	0.45	0.40	0.26	
1/2	9.00	1.05	0.67	0.59	0.38	
3/4	10.98	1.40	0.90	0.79	0.51	
1	15.89	2.08	1.34	1.17	0.75	
1 1/4	21.51	2.80	1.80	1.57	1.00	
1 1/2	25.70	3.35	2.15	1.88	1.21	
2	34.61	4.50	2.88	2.52	1.62	
2 1/2	56.12	7.18	4.60	4.02	2.68	
3	73.40	9.42	6.03	5.28	3.39	
3 1/2	94.64	11.25	7.20	6.30	4.05	
4	112.50	12.33	8.53	7.46	4.80	
4 1/2	127.80	15.61	10.04	8.75	5.62	
5	149.40	18.12	11.60	10.15	6.52	
6	193.50	23.45	15.00	13.14	8.44	
7	290.90	29.09	18.62	16.28	10.46	
8	312.50	31.25	20.00	17.50	11.25	

Sheet Zinc Unchanged

Winnipeg.

The reduction of 7 1/2 cents per pound in the price of sheet zinc, announced in the last issue of Sanitary Engineer, is still in effect and the present quotation is 17 1/2 cents per pound.

Candle Wick Packing Steady

Winnipeg.

No change has been reported in the price of candle wick packing and the present market quotation is still 48 cents per pound.

New Discounts on Soil Pipe

Winnipeg.

Prices have recently been revised on soil pipe and fittings, and the new quotations are on a somewhat lower scale than previously. Following are the new discounts:

SOIL PIPE—	
2 and 3 in.	7 1/2% off
4 in.	25% off
5 and 6 in.	12 1/2% off
8 in.	7 1/2% adv.
SOIL PIPE FITTINGS—	
2 and 3 in.	25% off
4, 5 and 6 in.	40% off
8 in.	7 1/2% adv.

Cotton Waste Steady

Winnipeg.

No changes have been made in waste prices and the demand is stated to be improving. The following are present quotations:

Credit Men's Association in St. John, N.B., Hold Banquet

Business is Fundamentally Sound in the Maritimes, And The Few Failures That Have Taken Place Represent Only Small Amounts
—Board of Governors Elected For Two Years

ST. JOHN, N.B., May 3 (Special).—The keynote sounded at the annual banquet of the Maritime division of the Canadian Credit Men's Trust Association, Ltd., held in St. John on Friday evening, April 29, was one of caution to the business man. H. W. Rising, the president, was in the chair and an informal talk was given by W. J. Ambrose, manager of the St. John branch of the Bank of Montreal. Several members made short speeches, and the annual report of the manager, T. H. Sommerville, was received.

Increase in Membership

Mr. Sommerville presented the ninth annual report of this division for 1920-1921. The membership increased from twenty-eight full and four associate members to thirty-three full and four associate. Instead of increasing membership fees, it was decided to charge for an excess of reports between branches, which would bring in the needed revenue. The financial statement showed a good balance on the year's operations. Failures that had taken place during the last few months were few and unimportant in amount. There was a feeling that business interests were not suffering severely from depression. The report strongly urged that adequate accounting was necessary to success. While the business of the Maritime Provinces was regarded as in a healthy state, expenditures should be limited to absolute needs. The unemployment situation was affecting trade and collections to some extent, but it was urged that creditors should give consideration to worthy debtors. The report was received and adopted.

Want Loyalty of Members

The president, H. W. Rising, said that while collections were good members did not use the association as much as when they were bad. Consequently members had dropped out. He asked that all be loyal to the organization, as

it was useful to all merchants and manufacturers.

The following were announced as elected to the board of governors for two years: T. N. Campbell, of Moncton, N.B.; J. F. Edgett, of Moncton, N.B.; H. W. Emerson, W. A. Harrison, C. P. Humphrey, F. W. Roach and E. M. Smith, all of St. John; elected for one year, E. J. Murphey, of Halifax.

Business Is Sound

In his talk on business conditions in the Maritime Provinces, W. J. Ambrose said that the bankers' viewpoint sometimes differed from that of the merchant. The banks had been preaching caution and prudence. They had advised that only such purchases be made as were necessary for actual business in view. Those that had followed this advice were now reaping the benefits. Business in the Maritime Provinces was fundamentally sound, he said. He described optimism as having faith in the future. He said that this spirit prevailed in the Maritime Provinces. With a reasonable amount of prudence and co-operation between the debtor and creditor merchants could be assisted and eventually become successful.

Lack of Good Faith

W. Matthews, of Moncton, N.B., agreed with the former speaker's policy of caution. R. T. Hayes, M.P.P., said one cause of depression was the lack of good faith by those they dealt with in cancelling orders. J. G. Harrison said that the advice given was sound. Most of the merchants were overstocked and while grocers had liquidated stocks pretty well, other lines had not. Need of co-operation was voiced by F. W. Roach. It was in the best interest of debtor and creditor. The debtor should not be forced too much, but given a chance to turn round. E. L. Rising attributed the setback to business to the luxury tax, but expected better conditions during the next six months.

WASTE—Cream, polishing, 24 1/2c; White, XXX extra, 21c; XX Grand, 20c; XLGR, 19c; X Empire, 17 1/2c; X Press, 16c. Colored, fancy, 17 1/2c; Lion, 16c; Standard, 14 1/2c; Popular J, 13c; Keen, 11 1/2c.
Above prices are subject to trade discount for quantities.

\$7.20; 16 ga., \$7.30; 18 ga., \$7.80; 20 ga., \$7.80; 22 ga., \$7.85; 24 ga., \$7.85; 26 ga., \$7.90; 28 ga., \$8.15.

GALVANIZED—16 ga., \$9.10; 18 ga., \$9.25; 20 ga., \$9.25; 22 ga., \$9.40; 24 ga., \$9.40; 26 ga., \$9.55; 28 ga., \$10.15; 10 3/4 oz., \$10.55.

Grease Cups Lower

Winnipeg.

Prices have been marked down on steel grease cups, and are now quoted at the following figures:

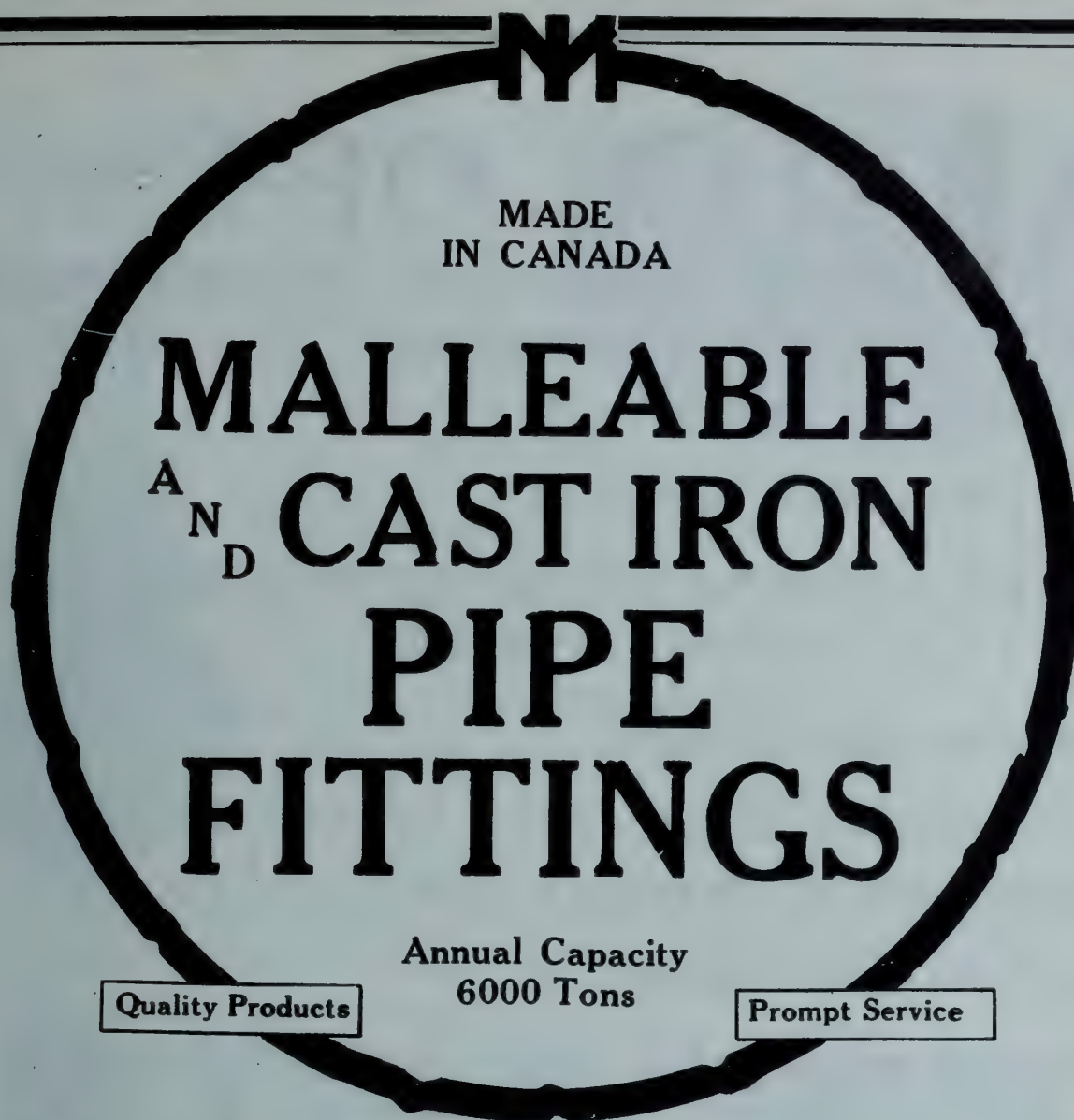
GREASE CUPS—000, 6c each; 00, 7c; 0, 10c; 1, 12c; 2, 20c; 3, 27c; 4, 38c.

Sheets and Plates Hold

Winnipeg.

The prices for black and galvanized sheets are holding at recent changes, and following are the present quotations:

BLACK—10 ga., \$7.15; 12 ga., \$7.15; 14 ga.,



M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

**RECESSED
DRAINAGE
FITTINGS**

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives :

Halifax—GEO. D. HATFIELD, Bedford Chambers Winnipeg—HARRY F. MOULDEN, Confederation Life Building
St. John, N.B.—H. G. ROGERS, 147 Prince William St. Vancouver, B.C.—CYRIL AMES, Wilton Block
Montreal and Toronto—From Head Office, Guelph, Ont.

A PIECE OF TABLE-WARE
may be solid silver without the "sterling" stamp, the accepted "Hall Mark" of quality.

But you don't know.

A Bank might be honest and efficient without Government inspection.

But you don't know.

A business concern may be absolutely responsible without a commercial rating.

But you don't know.

A publication may have the circulation it claims without verification by the Audit Bureau of Circulations.

But you don't know.

Better be sure.

The circulation of Sanitary Engineer is verified by the A. B. C. Sanitary Engineer is the only plumbing and heating publication in Canada that will supply an A. B. C. Audit.

Kerr Valves



Make good in service. Because they are correctly designed, strong and substantially made, they can be relied upon. The job where they are installed gives permanent satisfaction, and, consequently, increased business for the men who specify them and those who install them.



Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers

WALKERVILLE, CANADA



Victory Radiators

The water circulates through upper and lower Headers, and between two tubes—a smaller tube within a tube.

Uses 80 per cent. less water.

Saves one-third of coal. A smaller furnace keeps the water hotter.

Costs 20 per cent. less to instal a system.

Over 200 successful installations made in the Province of Quebec.

Representatives wanted — Plumbers and Steamfitters — in different provinces. Address,

MONTREAL GENERAL TOOL COMPANY, LIMITED

2419 Notre Dame St. East, Montreal

**AIR LINE SYSTEMS**

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

AIR PRESSURE TANKS

The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS

James Morrison Brass Mfg. Co., Toronto.

BATHROOM FITTINGS

Gendron Mfg. Co., Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CEMENT

The Northwestern Chemical Co., Marietta, Ohio

CIRCULATORS

Atlas Engineering & Machine Co., Ltd., Toronto.

CLAMPS "C"

J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CONDENSATION UNITS

The Westco Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS

C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS

R. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS

The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS

Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS

Beaton & Corbin Mfr. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Co., Toronto, Ont.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES

Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES

Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS

Bastian-Morley Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hotstream Heater Co., Cleveland, Ohio.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

GRATES FOR RANGES, FURNACES AND BOILERS

McIntyre & Taylor, Toronto.

HEAT GENERATORS

Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS

C. A. Dunham Co., Ltd., Toronto.

HEATERS

The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

HUMIDIFYING APPARATUS

B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS

J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC

McIntyre & Taylor, Toronto.

KEROSENE WATER HEATERS

Hotstream Heater Co., Cleveland, Ohio.

LAUNDRY TUBS

The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

LEAD

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

MACHINISTS' TOOLS

J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS

Gurney Foundry Co., Limited, Toronto.

MIXING VALVES

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope

PACKING

Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES

Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.

PIPE, BLACK AND GALVANIZED

Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

The Finest One-Register Furnace on the Market

Jewel Pipeless Furnace

A Successful Heating Appliance



The success is very natural, based, as it is, on exceptional merit, and following where the reliable Jewel Furnaces have already blazed the trail. The efficient Jewel Pipeless has the same splendid qualities that have made the name "Jewel" famous throughout the Dominion.

Real Serviceable Heating

is the primary requirement for homes, schools, churches and other buildings. The Jewel Pipeless gives real, serviceable heating. The Furnace has two casings, the outer casing acts as a Cold Air duct, the inner casing as a Warm Air Flue.

The Duplex Register is directly over the furnace. The Outer Section is for admitting *Cold Air*, the Inner Section for delivery of *Warm Air*.

The casings can be made suitable to any cellar.

A postal request will bring full information and prices.

Manufactured by

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Hamilton, Canada

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 James Morrison Brass Mfg. Co., Toronto.
 Empire Mfg. Co., Ltd., London and Toronto.

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 Empire Mfg. Co., Ltd., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Toronto Hardware Mfg. Co., Toronto.
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PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
 John Hall & Sons, Ltd., Brantford.
 A. B. Jardine & Co., Hespeler.

PIPE WRENCHES

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J. H. Williams & Co., Montreal, Que.

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Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Porcelain Products Ltd., Toronto.

PUMPS

W. H. Cunningham & Co., Toronto, Ont.
 R. M. McDougall & Co., Ltd., Galt, Ont.
 The Westco Pumps Limited, Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

R. M. McDougall & Co., Ltd., Galt, Ont.
 The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
 Lord & Burnham Co., Ltd., Toronto.
 Steel & Radiation Ltd., Toronto.
 Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 The Canadian John Wood Mfg. Co., Toronto.
 Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

C. A. Dunham Co., Ltd., Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 The Simplex Mfg. Co., Chicago, Ill.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.
 Hoyt Metal Co., Toronto.

STEAM SPECIALTIES

C. A. Dunham Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 Kerr Engine Co., Walkerville, Ont.
 James Morrison Brass Mfg. Co., Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS

C. A. Dunham Co., Ltd., Toronto.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES

James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

Atlas Tank Works, Toronto.
 The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS (RUBBER)

W. H. Cunningham & Co., Toronto, Ont.

TESTING PLUGS

James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Trimont Mfg. Co., Roxbury, Mass.
 J. H. Williams & Co., Brooklyn, N.Y.

TORCHES

W. H. Cunningham & Co., Toronto, Ont.

UNIONS

Canada Metal Co., Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
 R. MacDougall & Co., Ltd., Galt.
 James Morrison Brass Mfg. Co., Ltd., Toronto.
 Jenkins Bros., Ltd., Montreal, Que.
 The Kerr Engine Co., Ltd., Walkerville, Ont.
 United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
 Empire Mfg. Co., London and Toronto.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 The Westco Pumps Limited, Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS,

SOCKET AND CHAIN PIPE

J. H. Williams & Co., Brooklyn, N.Y.



To Your Advantage

It is certainly a valuable support, and assistance in business, to be protected against costly errors and mistakes in prices. You cannot be in touch, all the time, with markets, but Allpriser can be, and is. Allpriser Service keeps you and your clerks always informed of fluctuations in the cost and selling price of the goods you handle. It may save you hundreds of dollars per year. We all make mistakes, and the greatest source of loss is the fact that it is only in a few cases that we know we have made them! It pays to be protected.

Allpriser Service consists of a flexible, leather-bound book 7x9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles, and a regular service of new sheets revised to the latest changes. It only costs you about 7 cents a day—isn't it worth that to be sure—to be protected against mistakes?

It only costs a Postage Stamp to investigate. It may cost many dollars to pass this up. I want you to choose!

Kenneth B. Allison

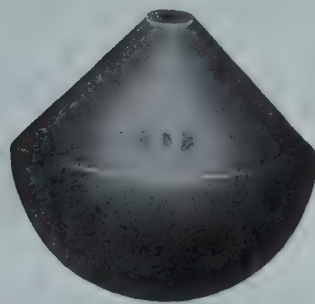
4 Irwin Avenue - - Toronto

KEROSENE WATER HEATERS



Trade Price
No. 20K \$25.10

The "Hostream" Kerosene Water Heater works just like a gas heater. The wickless burner generates its own gas—throws a clean, powerful flame. Heats water for bath in very few minutes. Hundreds of prospective buyers in localities where there is no gas. Why not get after this profitable business? If your jobber cannot supply you promptly we can.



Cone Top Tank Bulbs

Our bulbs are made of superior quality rubber, tops heavily reinforced, bottoms soft and pliable; every bulb guaranteed. Sizes $2\frac{1}{4}$ ", $2\frac{1}{2}$ ", $2\frac{5}{8}$ "; $2\frac{3}{4}$ " and 3" available from stock.

W. H. Cunningham & Hill, Limited

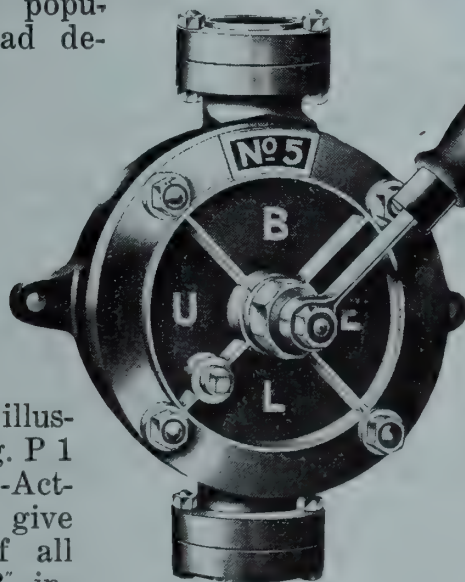
269 West Richmond Street

TORONTO

(Formerly W. H. Cunningham & Co.)

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS
HEAD OFFICE
EMPRESS
FOUNDRY



3,000 WORKERS
CORNBROOK
MANCHESTER
ENGLAND

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from $\frac{1}{2}$ " to 3" inclusive.

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Co.

269 West Richmond St.

Toronto, Ont.

And Now— Toronto Printers May Strike

THE present agreement between printers in book and job offices and employers in Toronto expires May 31. The minimum wage paid is \$35.20 per week (increased voluntarily a year ago by the employers from \$32.00, although the agreement had a year then to run). This wage covers a 48-hour week.

The International Union is demanding a week of 44 hours as the basis for all wage scales, and the Toronto unions are demanding a wage of \$44.00 per week of 44 hours, \$8.80 more per week for 4 hours less work.

This means an increase from 73 cents per hour to \$1.00 per hour, or over 36%.

Publishers and other employing printers feel that under present conditions of business and the admitted decreasing cost of living, the increased wages and shorter hours demanded by the International Union are unreasonable.

This is acknowledged by many of the thoughtful, loyal printers employed in the Toronto offices, who believe that the International Union has blundered in its demand that local unions shall not sign new agreements except on the basis of the 44-hour week.

The position, however, may be that these local men may not be able to make the International officers in Indianapolis see that to force a strike now on these unreasonable demands would be an act of folly—and a strike may be called on June 1st.

The facts of the case are presented here, for the information of the sections of the public—subscriber and advertiser—reached by this publication.

The attitude of the employing printers is shown by their voluntary action in giving a 10 per cent. increase last year while the agreement calling for the minimum wage of \$32.00 a week had still a year to run.

They feel strongly now, however, that this is not a time when an increase of 36 per cent. in the labor cost of production should be permitted.

If publishers are forced to pay \$44.00 a week instead of \$35.20 and get only 44 hours of work instead of 48, it is inevitable that subscription and advertising rates must advance. No business can stand an increase in its wage bill of 36 per cent. and absorb that increase. The extra cost will have to be added to the sale price of the product.

Publishers sincerely hope that the great body of sane opinion among the local printers may prevail and that the Indianapolis officials will be induced to withdraw their unreasonable demands so that Toronto printers may continue to find well-paid, congenial employment.

If this sane, thoughtful opinion does not prevail, a strike seems inevitable, with its equally inevitable result of loss to the printers and publishers, and inconvenience and loss to the public.

An expression of the opinion of readers of this paper on the Union's proposals, involving an increase of 36% in the labor cost of printed matter, is asked. Will you not write a letter to the editor (not for publication) telling him your view of the situation?

This statement is published by and has received the endorsement of the Toronto publishers who are members of the

Canadian National Newspapers and Periodicals Association

Including **SANITARY ENGINEER**

Morrison Valves

Your customers know the excellent reputation of Morrison Products and buy them readily.

Morrison Valves are specified on nearly all drawings for important contracts.

In every feature of design Morrison Valves are abreast of modern engineering progress.

These reliable fittings are made from perfect patterns, cast with the greatest skill, insuring evenly distributed material in the walls.

James Morrison Brass Mfg. Company
LIMITED

93-97 Adelaide Street West

TORONTO, ONT.



The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

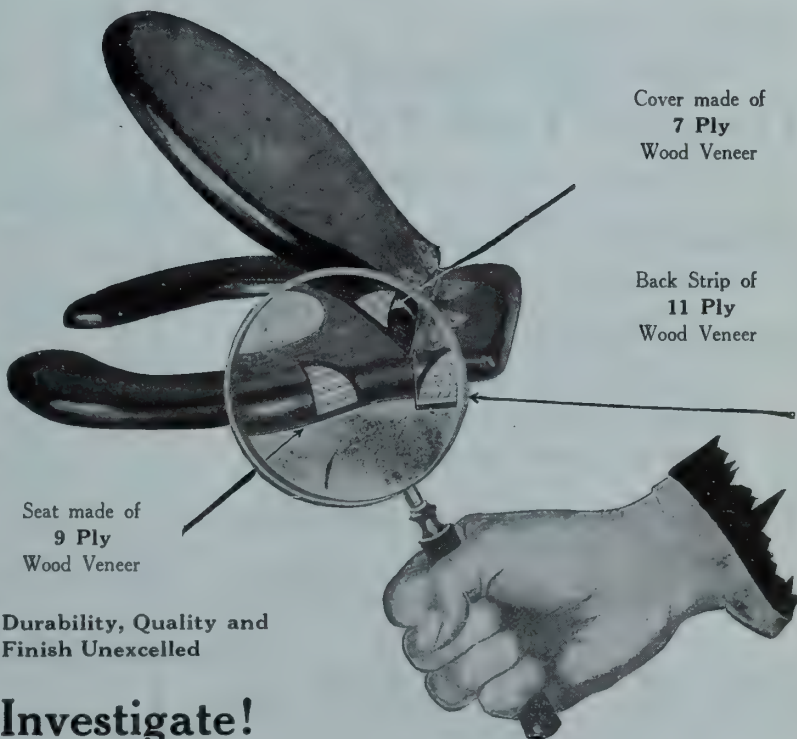
Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.

Seat made of
9 Ply
Wood Veneer

Durability, Quality and
Finish Unexcelled

Cover made of
7 Ply
Wood Veneer

Back Strip of
11 Ply
Wood Veneer



CANADIAN VENEERING CO., Inc.
ACTON VALE QUE., CANADA

Investigate!

McDougall

"Built for Service"

PUMPS

Pitcher Pumps

Open and Closed Spouts

Well Pumps

Lift and Force

Power Pumps

For Gas, Electric and Other Power

Electric House Pumps

For Pressure and Open Tanks

Diaphragm Pumps

Bottom or Side Suction

Suitable Hose Carried in Stock

House Force Pumps

On Base or Plant

Attractively Finished for House Use

Spray Pumps

With and Without Agitator

Thresher Tank Pumps

Fulcrum or Cog Gear Handle

Hydraulic Rams

Pipe and Fittings Carried in Stock

Drive Well Points

Brass Jacket or Washer

Strainers and Fittings

Foot and Check Valves, Etc.

We can ship any quantity immediately
from stock

Write for Circulars, Catalogues and Price Lists

The R. McDougall Co.,
Limited
Galt, Canada

Wade Drain Valve



Wade Straight-Way Clean-Out House Drain and Back Water Gate Valves give dependable service.

B Fig. 1—Backwater Valve

Water and Gas Tight

Back Water Valve of extra fine quality brass with planed face to make it water and gas tight.

Particular attention is called to flushing device which, upon being connected to main supply, keeps face of gate clean and free from cloggage by sewage waste.

This fitting without back water gate valve makes the most perfect clean-out now on the market.

Write for catalog "B"

Wade Iron Sanitary Mfg. Co.
551-553 Fulton St., Chicago

Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor
Drains and All Descriptions of Iron or Gravel
and Grease Basins.

WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

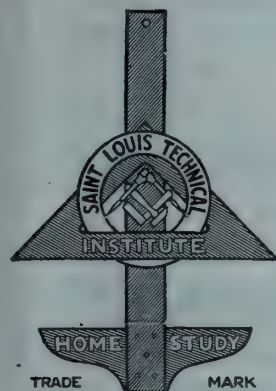
The Sanitary Engineer's circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

Galvanized and Black Sheet Canada Plate

BRASS AND COPPER TUBES, RODS, SHEETS

Lists on Request. Shipments from Toronto Stock.

ONTARIO METAL PRODUCTS CO., LIMITED
PHONE PARKDALE 5200 TORONTO, ONT.



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.

Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

FULL INFORMATION FREE, WRITE TONIGHT

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. KOTHE, Prin.

St. Louis, Mo.

ANNUAL CONVENTION

A PROFITABLE and interesting time is promised the Sanitary Engineers of Canada during their visit to "OLD" Quebec to attend the Twenty-fourth Annual Convention of the Canadian Society of Domestic Sanitary and Heating Engineers, June 6, 7, and 8. We look forward to warmly welcoming you.

**L'Association des Constructeurs
de Quebec**

The Easiest Thing to Sell

In these days when everything is said to be hard to sell, it is a treat to get hold of something that is easy to sell.

The Westco Tankless Water System is actually easy to sell, and we would gladly prove it to you.

In the first place, the dealer knows what a boon running water is to every farmer, and his family.

The farmer and suburban resident does not have to be *sold* on the idea of running water on the farm or in the home, but what they do hesitate at is paying high prices for a system that is mainly a collection of tank, wheels, gears, valves, belts, etc., a multitude of moving, wearing parts.

Now the **Westco**
Tankless Water System

has NO TANK
NO GEAR
NO VALVE
NO BELT

Its quality and durability are guaranteed.

It has only one moving part—the impeller, and this, with its outer casing, is all bronze, so it is absolutely wear proof and rust proof.

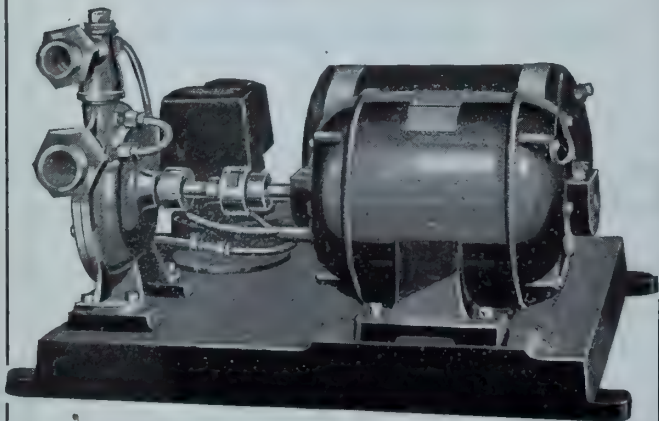
It is automatic—and self-lubricating.

Where it is being advertised it is in heavy demand. It has been advertised in your territory. It is easy to sell to those without running water in their homes because it is so perfect in construction, so efficient in operation, so low in cost, slow in wear, and free from troubles.

Write us for particulars of our Dealer's Co-operative Plan.

Westco Pumps Limited

Queen and Abell Sts., Toronto, Ont.



WOLVERINE Cast Iron Simplex Trap

A Genuine Wolverine Product That Is Giving Universal Satisfaction.



Anti-Syphon
Adjustable
Quickly Installed
No Joints To Wipe
Has Heavy Brass
Adjustable Coupling
Nut and Brass Cleanout
Plug

THE ORIGINAL CENTRIFUGAL TRAP

Our Name on the Body is Your Guarantee. Specify "Wolverine"

WOLVERINE

LIMITED

76 NELSON ST., TORONTO



OPEN VIEW
NO. 10-A

THE
CEILING
PLATE

that's
better



THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL-HINGED PLATE, FLANGES $\frac{3}{4}$ " WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.



GEM NO. 4

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The Beaton & Cadwell Manufacturing Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., New Birks Building, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

HOYT
WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL

TORONTO

WINNIPEG

**Extending the Uses of Your Product
by Informing Dealers**

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

Useful Books For Sale**Business Management**

Transaction of Business
Business Companion
Manual of Business
The Dignity of Business
The Making of Merchants
Business Methods (Hardware)
Motor Truck as an Aid to Business Profits
How to Conduct Real Estate Insurance
Scientific Price-Maker
The Art of Business Getting
Aids to Shippers
Store Management Complete
Shop Management

Plumbing and Heating

Practical Wrinkles for the Plumber
Country Plumbing Practice
External Plumbing Work
Practical Plumbers' Work
500 Questions and Answers on Steam Fitting
Gray's Plumbing Design
A Successful Way to Operate a Heating Plant
Steam Boilers
Plumbing Estimates and Contracts
Fuel Economy in Boiler Rooms
Steam Boilers (Shealy)

Metal Work

Metal Spinings
Practical Plating, Polishing
Manual of Receipts
Cornice Work Manual

Roofing Cornice and Skylight Manual
Bent Iron Work
Metal Working
Easy Methods in Roof Measurements.

The Maclean Publishing Co., Limited
Technical Book Department
143-153 University Avenue, Toronto, Canada



TORONTO

Burrow, Stewart & Milne Co. Limited
Canada Pipe & Steel Co. Limited.
Cluff Bros.
Crane Company.
Dominion Radiator Co. Limited.
The Empire Mfg. Co. Limited.
Gurney Foundry Co. Limited.
Jas. Morrison Brass Mfg. Co. Limited.
W. A. Porter & Co.
Jas. Robertson Co. Limited.
Standard Sanitary Mfg. Co. Limited.
Steel & Radiation, Limited.
Taylor-Forbes Co. Limited.
Warden King Limited.

WINNIPEG

J. H. Ashdown Hardware Co. Limited
Burrow, Stewart & Milne Co. Limited
Crane Company.
Dominion Radiator Co. Limited.
Gurney North West Foundry Co. Limited.
Jas. Robertson Co. Limited.
Vulcan Iron Works Limited.
VANCOUVER
Crane Company.
Gurney Foundry Co. Limited.
Taylor-Forbes Co. Limited.

McINTYRE & TAYLOR LIMITED

MONTREAL
55 St. Francis-Xavier St.

TORONTO
501-3 Queen St. W.

WINNIPEG
156 Lombard St.

M. & T. Coils

EXTENDED SURFACE

Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

Sold by the firms mentioned below:

CALGARY

J. H. Ashdown Hardware Co. Limited

GUELPH

Taylor-Forbes Co. Limited.

HAMILTON

Burrow, Stewart & Milne Co. Limited
Hamilton Stove & Heater Co. Limited
C. Marks & Co.
Standard Sanitary Mfg. Co. Limited.
Taylor-Forbes Co. Limited.

LONDON

The Empire Mfg. Co. Limited.
The Hobbs Hardware Co. Limited

MONTREAL

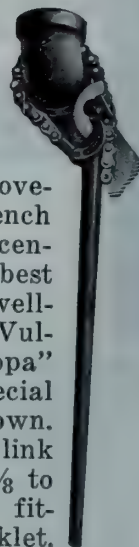
Burrow, Stewart & Milne Co. Limited
Dominion Radiator Co. Limited.
Gurney-Massey Co. Limited.
Jas. Robertson Co. Limited.
Steel & Radiation, Limited.
Thos. Robertson Co. Limited.
Taylor-Forbes Co. Limited.
Warden King Limited.

ST. JOHN, N.B.

Jas. Robertson Co. Limited.



WILLIAMS' "FALCON" Chain Pipe and Fittings Wrench

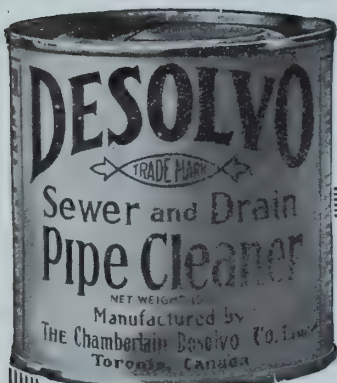


is the greatest improvement in pipe wrench design in half a century. Combines the best features of the well-known Williams' "Vulcan" and "Agrippa" wrenches with special advantages of its own. Six sizes either flat link or cable chain for $\frac{1}{8}$ to 12-inch pipe and fittings. Ask for booklet.

J. H. WILLIAMS & CO. LIMITED

Formerly Canadian Division of
The Whitman & Barnes Mfg. Co.

77 Thorold Road St. Catharines, Ontario



It Sells and Satisfies Your Customers

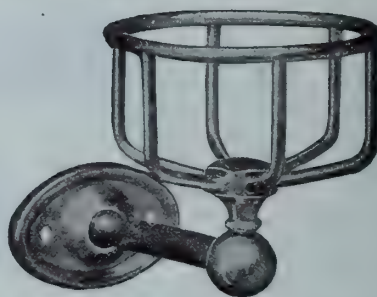
Clears Clogged or Frozen Pipes

Beside saving you time and money in performance of your jobs of clearing clogged or frozen pipes, Desolvo is subsequently bought by pleased owners of homes, factories, hotels, office buildings, etc. You will constantly have sales for Desolvo, and its uniform efficiency in bringing results creates repeat business of a very valuable and substantial character. Have a stock of Desolvo, both to simplify your own work and to create profitable sales.

The Chamberlain Desolvo Co., Limited

109 Church St., Toronto General Offices: Pittsburgh, Pa.
Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St., Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont. Western Canada Representatives: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.

THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Storage Tanks
Hot Water Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

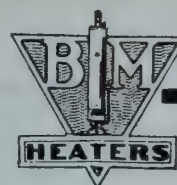
WRITE US FOR PRICES

Atlas Tank Works

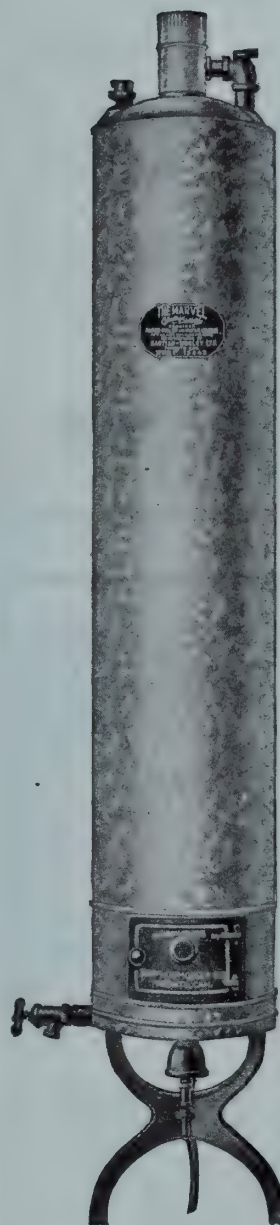
Works and Office:
105 Ritchie Ave.
TORONTO

INDEX TO ADVERTISERS

Allison, K. B.	42
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Atlas Tank Works	50
Bastian Morley, Ltd.	51
Beaton & Caldwell	48
Burrow, Stewart & Milne Co.	41
Campbell & Co., P.	52
Canadian John Wood Mfg. Co.	7
Canadian Veneering Co., Limited.	45
Canada Metal Co., Limited	11
Canadian Brass Co.	2
Canadian Tube & Steel Products, Ltd.	52
Chamberlain Desolvo Co.	50
Crane Limited	6
Cunningham & Co., W. H.	43
Dominion Sheet Metal Corp., Ltd.	1
Empire Manufacturing Co.	Outside front cover
Fitting, Ltd.	52
Galt Brass Co.	Back cover
Gendron Mfg.	50
Granfield Tap & Die Co.	9
Hall, Zryd, Foundry Co., Ltd.	3
Hause Mfg. Co., Chas. F.	52
Hoyt Metal Company	49
International Malleable Iron Co.	37
Jardine & Co., A. B.	5
Katie Foundry Co.	52
Kerr Eng. Co., Ltd.	39
Lord & Burnham, Ltd.	4
Marks & Co.	52
McDougall & Co., R.	46
McIntyre & Taylor, Ltd.	50
Morrison Brass Mfg. Co., Ltd., Jas.	45
Montreal General Tool Co., Limited.	39
Mueller Mfg. Co., H.	35
Ontario Metal Products Co., Limited.	47
Port Hope Sanitary Mfg. Co.	26-27
Spencer Heater Co.	8
St. Louis Technical Institute.	47
Standard Sanitary Mfg. Co.	12
Steel Trough Machine Co.	52
United Brassfounders & Engineers, Ltd.	43
Wade Iron & Sanitary Mfg. Co.	46
Warden-King, Limited	8
Wesco Pumps, Limited	48
Williams & Co., J. H.	50
Wolverine, Limited	48



B-M Gas Water Heaters are made in Canada



Buy Canadian-made goods and refuse to buy any other, even to the extent of doing without—is our loyal duty now.

This applies — whether it's food, luxuries — or whether it's gas water heaters.

B-M Heaters are Canadian-made Gas Water Heaters with a reputation for high heating-efficiency and low operating-cost. Combining range boiler and heater in one they are installed with fewer connections, more easily and at a lower cost to your customer.

They save the plumber's time, at the same time give him a generous profit. Investigate B-M Heaters. Send for literature and prices.

BASTIAN-MORLEY LIMITED

World's Foremost Heater Builders
Hanson St. and Hillingdon Ave.
TORONTO, CANADA

WROUGHT PIPE

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

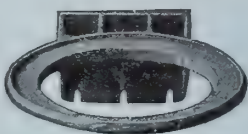
by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{8}$ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Ltd.
Works: Lachine Canal, Montreal

K-T Wall Bracket



Boiler Stand

This useful fixture may be screwed to the wall at any height and effectively economizes floor space in a small bathroom, adding to the appearance of the job. It is readily adjustable for height and made in standard sizes. Ask your jobber for the K-T Wall Bracket Boiler Stand.



Fittings Limited



Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa



No. 1
"TWEED"
Sanitary Closet
with mahogany
finished seat
and lid with
nickel-plated
hinges.

The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

We also make an attractive line of "Tweed" Baths and other home conveniences.

LOUIS A. PAYETTE
304 University St., Montreal
Quebec and Eastern Representatives

Out-of-Town Business

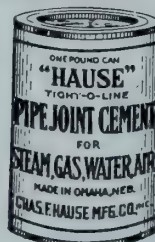
Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

Write for price lists and literature.

The STEEL TROUGH & MACHINE CO.
TWEED, ONT., CANADA Limited



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors.

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

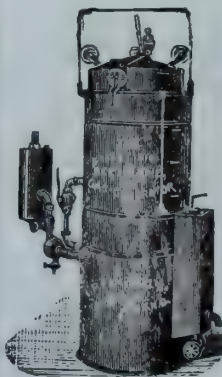
Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

PRIVATE LIGHTING SYSTEMS



Now is the time. You are the man—to sell and install "Scientific" acetylene lighting systems in your locality. Rural Residences, Churches, Stores, Clubs and Hotels are seeking modern lighting outfits and you can reap a good profit in supplying and fitting the gas piping and fixtures as well as the generator.

Hundreds in use in the best buildings upwards 20 years. No delicate and expensive parts that require renewing as in other systems, so that you can give a better guarantee than any others.

Send for circular and go after this business. We will assist you.

P. Campbell & Co.
Manufacturers
St. John, N.B.

The Farmer Needs City Comforts

IN Ontario alone it is estimated by the best authorities that there are over 150,000 farmers who have no bathroom in their homes. Look at the big lot of prospective plumbing work there is for you. The question of sanitation on the farm is one of the most important. The sanitary fixtures of a bathroom and modern kitchen must be discharged into something. The septic tank takes the place of city sewers and every septic tank must be fitted with something that will ensure a positive intermittent discharge. This discharge must flow into a large number of sub-surface field tile, and nature does the rest.

ONE of the main reasons why the average farmer has not had his home fitted up with a modern kitchen and bathroom is because he was skeptical about the final disposal of the sewage. The cesspool proved to be not only insanitary, but also unsatisfactory, and the farmer is realizing this more now than ever.



EVERY agricultural college in Canada is telling him about city conveniences and this makes it easier for you to sell him a bathroom outfit. We are advertising our syphons in farm journals so that the farmer will know about them, thus again making sales easier for you. *Your jobber can supply your needs.*

ANTHES FOUNDRY, LIMITED

Manufacturers

Cast Iron Soil Pipe and Fittings

JEFFERSON AVENUE
TORONTO

SASKATCHEWAN AVENUE
WINNIPEG



Many Articles—One Quality

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Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, JUNE 1, 1921

No. 11

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A-861

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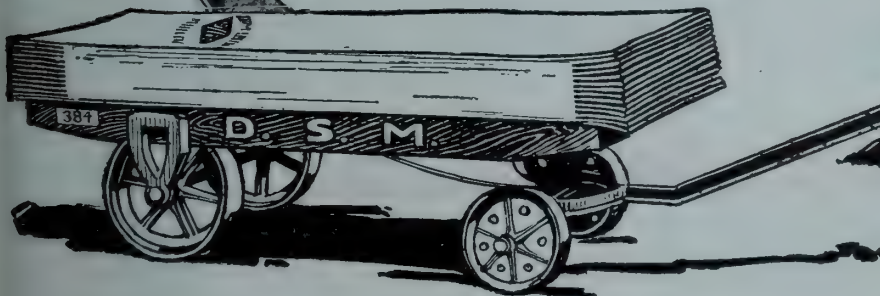
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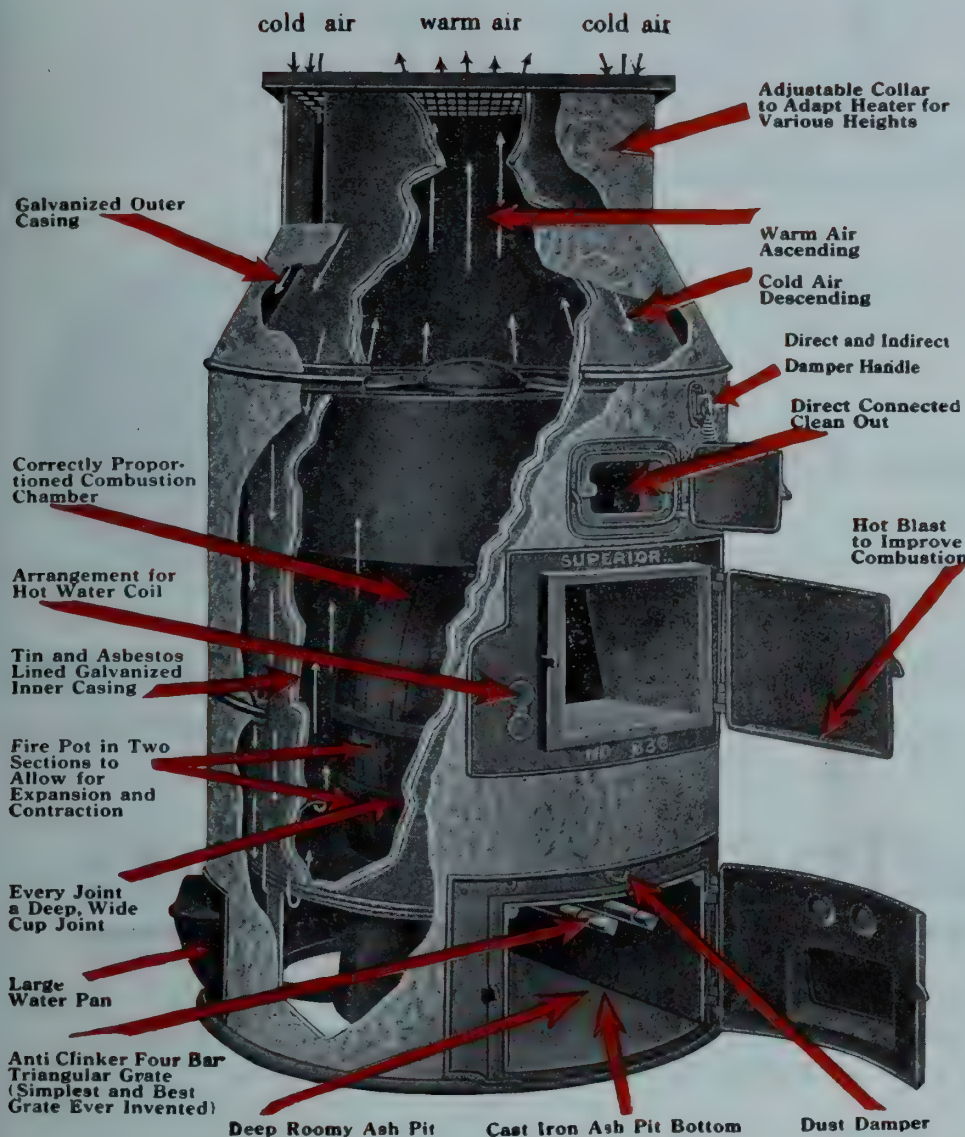
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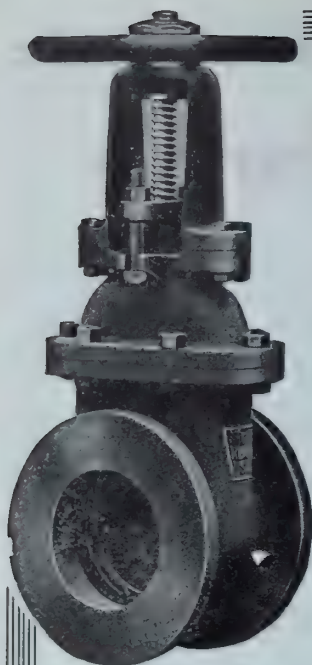
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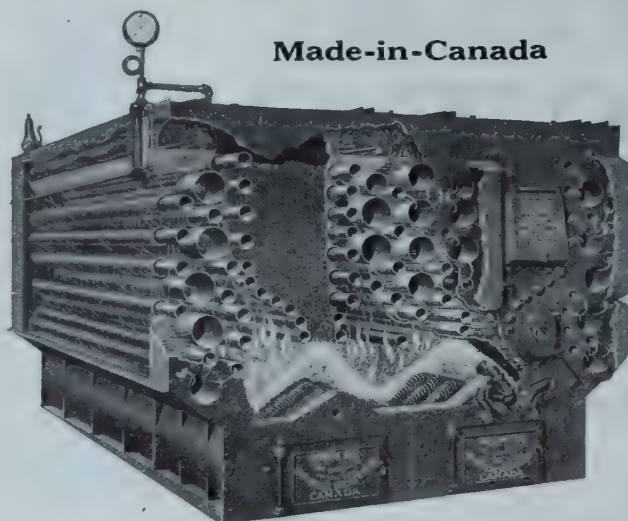
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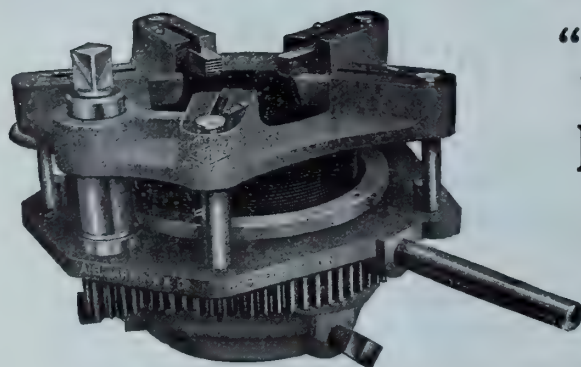
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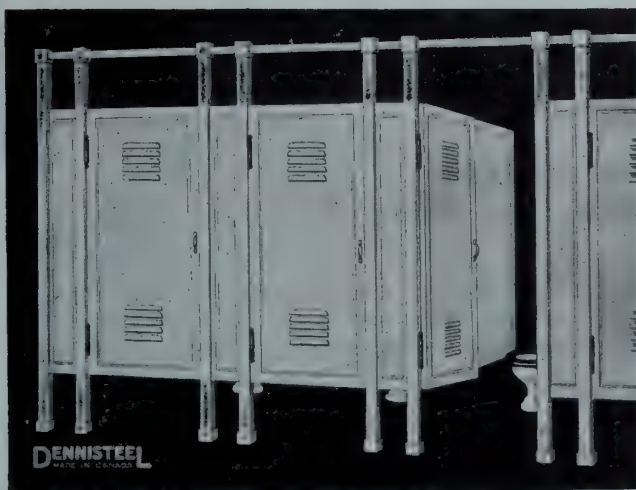
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

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No. 11

CONTENTS

Plumbing Trade's Views on New Taxes	13
Program of Canadian Convention	15
Practical Sheet Metal Work	16
Problems of Sewage Disposal in West	17
Relation of Physiology to Ventilation	20
Heating and Ventilating	21
Editorial	22
Too Many Gas Poisonings, Say Plumbers	23
New Goods	26
Sewage Disposal for Small Communities	27
News From Here and There	28
Waterworks, Tenders, Construction, etc.	29
General Markets	30-31-32

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Sanitary Engineer

Plumber and Steamfitter of Canada

Published
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of Month

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TORONTO, JUNE 1, 1921

No. 11

Plumbing Trade's Views on New Taxes

Manufacturers Will Endeavor to Find Means of Effecting Economies to Offset Higher Costs Due to Increased Sales Tax on Purchases of Materials—Encouragement to Foreign Firms to Locate Branches in Canada

"ON our particular line we do not expect the new measures imposed by the budget to affect our prices except in change of Sales Tax from 1 to $1\frac{1}{2}$ and 2 to 3 per cent. charged on all sales," said A. J. Dickey, Vice-President and General Manager C. A. Dunham Co., Toronto, in discussing the new tax and tariff legislation with Sanitary Engineer.

"Our aim will be to discover ways and means of effecting economy that will offset the increase in sales tax that will apply to purchase of raw materials entering into the manufacturing costs, of our finished products.

"The revenue measure is designed for consumers to pay their respective share of the budget, in proportion to their consumption of goods, and contractors will naturally have to take this item into consideration in making up their tenders or prices.

"Whether the sales tax will prove an effective instrument in the raising of necessary revenue remains to be seen. It is more equitable than the Business Profits Tax, and the elimination of the latter will eventually result in more favorable sales prices of commodities.

"One of the greatest benefits that will be derived from the budget will be the encouragement of foreign industries to establish themselves in Canada if they hope to cultivate Canadian business. The new measure for raising revenue as outlined in the budget will favor Canadian made products, where quality is the same as imported goods. This is, as it should be."

Will Increase Prices

"We have not looked into this matter very carefully yet, but we think the new taxation will increase prices to some extent on both domestic and imported supplies," said C. A. Lushy, secretary and treasurer Amherst Foundry Co., Amherst, N.S. "We believe however, that this is a better way to raise revenue than by an Excess Profits Tax, and as the government certainly must have the money, it is probable that this is as good a manner as could be devised for raising it."

Changes Are Very Fair

"We think the present tariff changes are very fair in every way and should have a tendency to reduce the imports from United States to Canada; especially if people would have to pay duty on the exchange in addition to the invoice value of goods," said C. Stevens, secretary Empire Brass Manufacturing Co., London, Ont.

"There is also the fact that American manufacturers,

even if they are selling goods in the United States at cost, cannot import the goods into Canada at their cost. They have to show a margin of profit over cost before selling the goods in Canada.

"The increase in Sales Tax, we think, is a very fair way of raising a revenue."

Duty on Materials Unchanged

"The new taxation has affected our line of products very little," said G. A. Walker, advertising manager H. Mueller Mfg. Co., Sarnia, Ont.

"So far as we have been able to judge the only difference it will make to us will be that our Sales Tax, as in the case of other Canadian products, will be slightly increased but the duty on raw materials used in the manufacture of our brass goods remains unchanged."

Prefer Even Percentage

Brass manufacturers in discussing the budget and its new tax and tariff regulations voiced the opinion that they would prefer to see the sales tax increased to 2 per cent., rather than only 1-2, as the odd split would no doubt cause many trivial irregularities. The even cent would be much easier to handle when applied to small sales, especially where these are numerous. It was apparent that the budget comprised a very fair attempt at impartiality.

A. C. Leslie & Co., Ltd., express themselves as being well satisfied with the new budget taxes. Although importers of galvanized and black sheets, copper, lead and lime sheets, and other lines of which there are Canadian competitors, the handicap exists with the extra tax to 2-1-2 per cent., on imports, yet the taxes are considered fair and it is realized that some must needs suffer more than others, no matter what proposals are brought down.

"We have heard very little complaint but naturally no one 'hollers before he is hurt' and it may be that some one will be pinched in the working out of this and you may be sure if such is the case there will be a loud wail go up," said A. T. Enlow, president Dominion Sheet Metal Corp., Hamilton, Ont., discussing the new tax and tariff legislation.

"It would appear to us that the proposition is worked out on a very fair basis as proposed in the new budget and the main difficulty from our viewpoint will be to enforce the dumping clause if it is made effective, due to the fact that it is difficult for the customs authorities to get proper information when the market is changing frequently but nevertheless the clause is to our mind a very good one, as well as the clause adding the United

States exchange to the valuation of duty, because the exchange is a part of the cost.

"It is all well enough for those who never wander from their own fireside to view with complacency the conditions which have made the exchange rate so favorable to the United States brought about largely by purchases unnecessarily on our part, but their attitude might

change if they went to the other side occasionally and attempted to pass Canadian money.

"It is a fact to-day that in Cleveland Canadian currency is not only unacceptable but is a source of ridicule and the butt of jokes and will not be taken by the average business man at even 50 per cent. discount, while the larger merchants arbitrarily deduct 20 per

cent. regardless of what may be the ruling rate of exchange at the time.

"I think we should back up the Minister of Finance to the extreme limit and, however painful it might be to curtail foreign purchases at least for a few years, we would find that Canadian currency would be at a premium instead of a discount because there is no country so blessed with all the fundamental elements of prosperity as Canada."

Interesting Points in Retailers' Test Case

Recent Hearing of Case to Determine Status of Various Branches of Trade Decided in Favor of Retailers—No Steps to Have Refund Made to Tinsmiths.

THE judgment in the test case which was taken by the Dominion Government against Messrs. Pedrick and Palen, merchant tailors, Bank Street, Ottawa, to compel them to take out a manufacturer's license and pay a sales tax, was rendered in favor of the defendants, and incidentally in favor of thousands of retail merchants throughout Canada, including tinsmiths.

The decision is vastly important, because it settles once and for all the question of what constitutes a retail merchant. It will be a precedent for other courts throughout Canada in settling questions of a like nature. This case was defended by the Retail Merchants' Association of Canada, and it took up a lot of time and attention, but it was well worth both the time and the expense because it practically covers every case that has come up in every section of the retail trade since the War Revenue Act came into operation, and it proves beyond doubt that the association's contention was right. The question of what constitutes a manufacturer, a wholesaler and a retailer has been one that has caused contention and discussion over a period of forty years. Latterly when governments have undertaken to put restrictions on any of these classes, the clerks in the various departments of the government, who are not familiar with commercial conditions, have placed their own interpretation on it. For instance, not so long ago the department of statistics was asked by the department of labor to gather certain facts concerning manufacturers. This department immediately took it upon itself to classify certain retailers as manufacturers, with the result that the retailers in question were put under the inconvenience of filling out forms, which caused them an immense loss of time and much expense. When such cases as these arise in the future there can be only one basis of settlement.

The decision will likewise be a precedent for the other courts when questions

arise, such as under what class, in the Assessment Act, a merchant would come. For instance, the assessment in Ontario is 60 per cent. on manufacturers; 70 per cent. on wholesalers and 25 per cent. on retailers. The decision will help the revision and county courts of each province to settle this question, which has been a most contentious one for years.

The Judgment

In referring to the word "manufacturer" the judge states that it is an elementary rule of statutory construction that every word ought to be construed in its ordinary or primary sense, unless a secondary or more limited sense is required by the subject matter of the context. He then goes on to say what is the primary and natural meaning of the word.

SALES TAX MUST BE SHOWN SEPARATELY

Some amendments have been made to the original budget as outlined in the May 15 issue of Sanitary Engineer. One of these provides that the purchaser will be furnished with a written invoice of any sale stating separately the amount of the tax to at least the extent of 1½ per cent., such tax not to be included in the manufacturer's, producers or wholesaler's costs on which profits are calculated.

Asked why the whole tax should not be shown Sir Henry Drayton said if the manufacturer made a sale direct to the retailer and if he had to show the whole tax he would show twice the tax shown by the wholesaler. The manufacturer desired the opportunity of showing the same tax as the wholesaler and it was given in the amendment.

"From its etymology the word obviously means to make by hand. Under this primary signification every human being, it must be conceded, is a manufacturer in the sense that, owing to the rigor of the punitive dispensation to which our race was condemned after the fall of Adam, he has to use his hands. But that is not the meaning that is to be attached to this word 'manufacturer' in the present issue. The object of the act cannot be to weld into the class of manufacturer all classes of men who manufacture, who make or do any work, or part thereof, with their hands.

"Apart from any legal rule of construction would it not seem to submit the word to an undue straining, to do violence to the English language to hold for instance a humble seamstress, dressmaker, making a few dresses for consumers, to be a manufacturer—or, as in the present controversy, a humble merchant tailor making suits for consumers to be a manufacturer. If a meeting of manufacturers were called to discuss matters relating to their business, neither dressmakers nor retail merchant tailors would be expected or even allowed to attend such a gathering. There is but one sane conclusion to be arrived at, if one is to be guided by common sense, and that is the retailer is not a manufacturer in the general acceptance of the word."

Costs Large

Commenting on this judgment, E. M. Trowern, secretary of the Retail Merchants' Association of Canada, said: "It is a disagreeable position for any association to take—that of opposing any government legislation, but the case which has just been settled was one of such importance to the retail trade of Canada that we found it could not be settled in any other way. We were forced to take it to the courts. The costs have been large, but the result of the action means that every line of the retail trade will be benefited and the result emphasizes the importance of all

retail merchants being united in one big organization, and not divided into separate groups, or separate single lines of trade associations.

"The head office being located in Ottawa, and having the facilities for giving the Act close study when it was first prepared, and following its passage through the House of Commons and the Senate, enabled us to understand its intent and meaning, and we were certainly surprised when we found the Department of Customs and Inland Revenue endeavoring to classify all retail merchants who do a small amount of assembling and manufacturing in almost every line of retail trade as manufacturers.

"We presented our views to the Department and also to the Government, but we secured no redress. We then engaged the best counsel obtainable in Ottawa and explained our case to him, and a suit was commenced in the Exchequer Court. We asked our members not to take out manufacturers' licenses, or to collect or pay a sales tax, pending the result of this suit. A very large number of members in all parts of Canada stood loyally behind us in our request, and by doing so they have been saved considerable annoyance as well as a great expense, which should show them once more the value of being members of one big, united organization such as ours.

"A few of our members, and many who are not members, who took out manufacturers' licenses and paid the sales tax have asked our opinion as to the advisability of their requesting the Government to have the sums so paid returned to them, but we have advised them that we do not feel that we should be called upon to take this matter up with the Government, especially as we requested the retail trade generally not to take out a manufacturer's license or to collect or pay a sales tax.

"There is another suit still pending in another court in Ottawa against retail confectioners, which was instituted by the Government and which is being defended by our association. There is a slight difference between the two cases, as this one involves the question of the luxury tax as well as the question of the sales tax, but we have every reason to believe that we will also succeed in our contention in this matter."

Jack Frost Ice Machine Co., Ltd., has been incorporated in Ontario with capital of one million dollars and head office in Toronto, to manufacture laundry machinery, refrigerating machinery, refrigerators, pumps, furnaces, stoves, ranges, boilers, lavatories, baths, heaters, sinks, toilet wares, pipes for water, gas, sanitation and drainage, household implements and utensils.

Programme

Twenty-Fourth Annual Convention

of

The Canadian Society of Domestic Sanitary and Heating Engineers

June 6th, 7th and 8th, 1921
City Hall, Quebec, P.Q.

Delegates Headquarters - - Ste. Ursule Hotel

MONDAY, JUNE 6th

- 10.00 a.m.—Organization Meeting of Quebec Provincial Association.
- 2.00 p.m.—Canadian Society Executive Committee Meeting.
Appointment of Special Committees.
- 4.30 p.m.—Auto Drive around City and National Park.
- 8.00 p.m.—Conference on "Possibility of Promoting Increase of Construction Through Advertising."
Addressed by Mr. E. C. Smith, manager of Quebec Daily Telegraph.

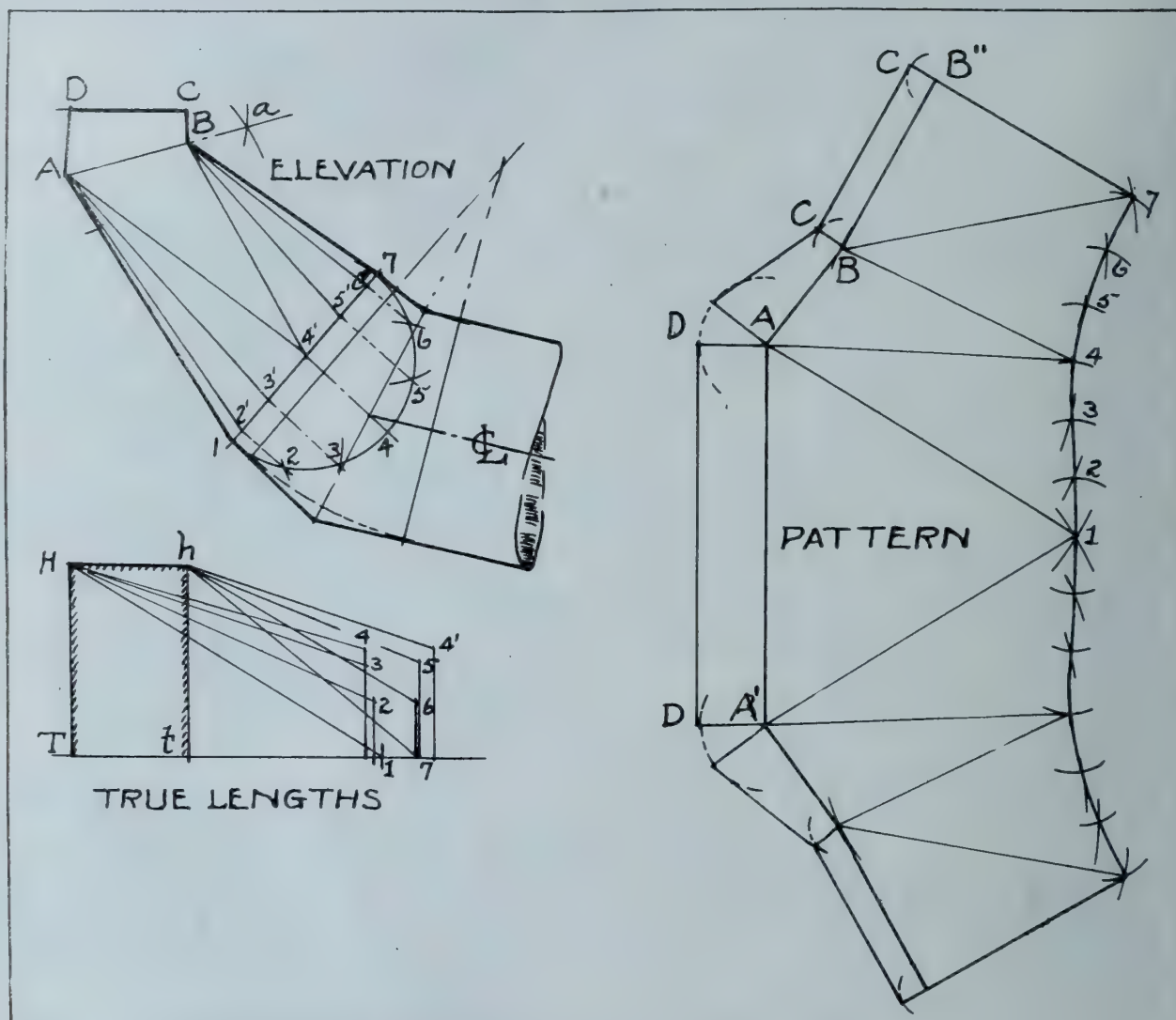
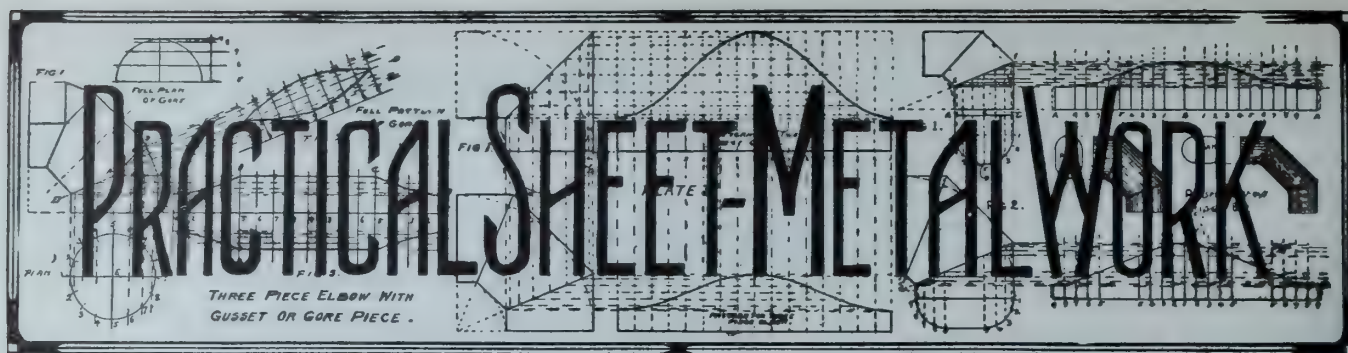
TUESDAY, JUNE 7th

- 10.00 a.m.—Official opening of the Twenty-fourth Annual Convention. Address of Welcome by Mayor of Quebec City.
Officers' reports.
- 2.00 p.m.—Report of Special Committees.
Selection of next meeting place.
Nomination of Officers.
- 3.30 p.m.—Conference with Manufacturers and Wholesalers.
- 4.30 p.m.—Promenade on river around Harbor to Dry Dock and Quebec Bridge.
- 8.30 p.m.—Conference on the best means to raise the efficiency of the industry. Addressed by Mr. Thos. J. Minnes, Brantford, President Canadian Trade Extension Bureau.

WEDNESDAY, JUNE 8th

- 10.00 a.m.—Election and installation of new officers.
Study of by-laws regulating sanitary plumbing.
- 2.00 p.m.—Unfinished business.
Grand wind up. Vive la Canadienne, Canada for ever.
- 4.30 p.m.—Drive to Ste. Anne and Montmorency Falls.
- 8.00 p.m.—Banquet at Kent House, Montmorency Falls, tendered by Wholesalers and Manufacturers.

GOD SAVE THE KING.



Pattern for Furnace Boot

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri

Question.—Will you please show us how to draw a pattern for a half off set or straight boot or furnace bullhead?—Webster & Van Male, Welwyn, Sask.

Answer.—The terms used to designate this particular boot must be somewhat local, since the writer is unable to define exactly what is meant by them. Local expressions have different names for various fittings and we would therefore suggest that readers having problems

should make a small sketch drawing of what they have in mind. That gives a definite outline and shape of what the correspondent has in mind and does not require so much guess work on this end of the line.

In this case we have selected a problem that may possibly approximate what the subscriber has in mind. We first draw the elevation, drawing the sides of rectangle for stack as D-C, whose half

section would be as T-H-h-t in true lengths diagram. Then make the length C-D quite short, possibly an inch and a half or two inches wide. After this draw the heel D-A and bisect the angle of heel D-A-1 as in point a. After this add the body of round pipe by drawing 1-7 to the diameter of pipe and to the angle you wish the boot to point to. Describe the semicircle and divide in any

(Continued on page 23)

Problems of Sewage Disposal in West

Investigation and Recommendations of Commissioner of Public Health in Saskatchewan Reveal a Solution of Intricate Problems of Sewage Disposal Found in Western Canada Where Subsoil is Nonabsorbent, Where There is Scarcity of Watercourses and Where Frost Penetrates Deeply Into the Ground

Report presented by M. M. Seymour, Commissioner of Public Health, Saskatchewan, and Hon. G. Langley, Minister in Charge of Public Health

A FEATURE in the development of rural Saskatchewan during recent years has been the construction throughout the province of modern farm homes. These residences are in almost every

perience in constructing and operating sewage disposal plants in Saskatchewan, an investigation has been made by officials of the Bureau of Public Health during the past year of the systems of sewage disposal in actual use at 72

Necessity for Treatment

Each of these methods of disposal requires some form of preliminary treatment to remove a proportion of the solids, otherwise a serious nuisance will be created.

Cesspools

The cesspool is an attempt to combine treatment and disposal of the sewage and it accomplishes neither. A cesspool, as one usually finds it, consists of a covered hole in the ground, the sides being cribbed with wood or lined with concrete or brick but with nothing but earth for a bottom, the purpose being to allow the liquids to soak away into the ground. The solids in the sewage settle to the bottom of the cesspool and choke any porous soil that may be available for absorption and the cesspool quickly becomes stagnant and offensive. The construction of cesspools as above described is no longer authorized by the regulations issued under the Public Health Act.

Septic Tanks

The septic tank is the simplest and most practical form of treatment to reduce the suspended matter and to render the sewage capable of final disposal with the minimum of nuisance.

What the Septic Tank Does

The function of the septic tank is to expedite the natural processes of decomposition and putrefaction.

case equipped with electric light and power and all the labor-saving devices and conveniences which were at one time thought to be available only for the urban population. There has, however, been a tendency to postpone the installation of modern plumbing fixtures pending more definite and reliable information on the type of sewage disposal system best suited to the local conditions.

Experience has shown that a system of sewage disposal which could be left to run itself on a farm in the eastern provinces will not prove so accommodating if installed in Saskatchewan where the subsoil is for the greater part a stiff nonabsorbent clay, where creeks or water-courses are almost unknown and where the frost can be relied upon to penetrate six feet into the ground each winter.

The conclusions arrived at as a result of this investigation are embodied in the following pages and in the revised plumbing regulations. Such provisions of the latter as concern the disposal of sewage are appended to this bulletin.

Sewage Treatment

Sewage from a farm house, that is, the waste water from water closets,

In the "Plumbing Regulations" issued under the Public Health Act reference is made to the construction of sewage disposal systems for isolated buildings. It is with a view to supplementing these regulations and to meeting the repeated requests for information concerning the principles, construction and operation of a sewage disposal plant for a rural home on the prairie that this bulletin has been prepared.

In order that the information which follows may be a true statement of ex-

perience in constructing and operating sewage disposal plants in Saskatchewan, an investigation has been made by officials of the Bureau of Public Health during the past year of the systems of sewage disposal in actual use at 72

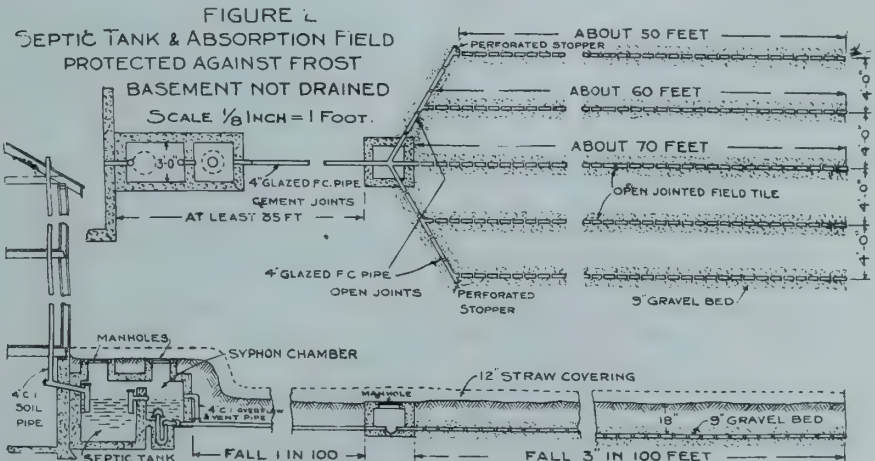
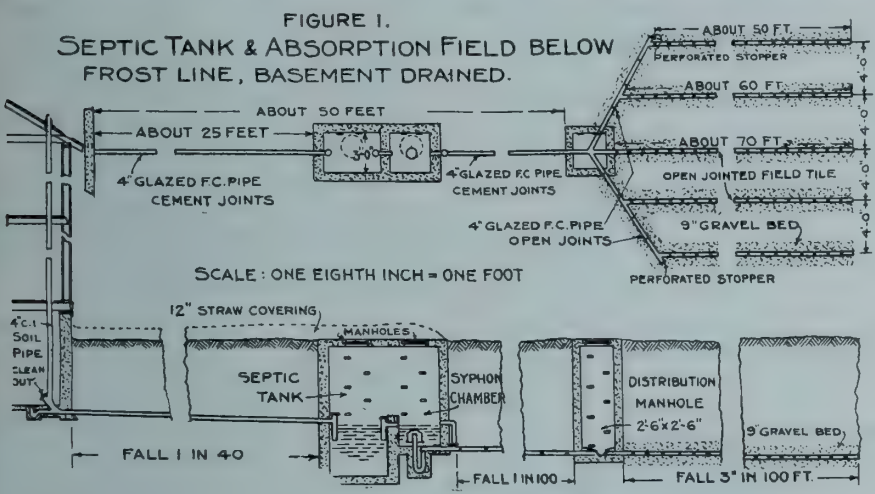
farmhouse. The conclusions arrived at as a result of this investigation are embodied in the following pages and in the revised plumbing regulations. Such provisions of the latter as concern the disposal of sewage are appended to this bulletin.

Sewage from a farm house, that is, the waste water from water closets,

baths, sinks and wash tubs, may be disposed of in one of three ways:

- (1) By discharge into a watercourse.
- (2) By discharge into the subsoil.
- (3) By discharge on the ground surface.

Two simple changes take place in such a tank. The first is the settlement of the solids to the bottom, the grease and lighter particles floating to the top.



The second is the rotting of the settled solids.

This is brought about by the action of a certain type of bacteria which multiply in the solids and in the scum which forms on the surface of the tank.

These bacteria thrive without oxygen and break up the solids into liquids and gases. The above is all the septic tank does or claims to do.

The statement has often been made that sewage after passing through a septic tank has under gone "a ninety per cent. purification" and responsible citizens have averred that the effluent from a septic tank should be fit to drink.

Let these illusions be once and for all dispelled.

The effluent from a septic tank is just as dangerous to health as the raw sewage which is discharged from the house.

A septic tank removes the greater

in some cases be constructed close to the house. (See figures 2 and 4.)

The basement or foundation wall of the house must under no circumstances be used as a wall of the tank, but the tank wall, if it has a minimum thickness of 9 inches of concrete may be built against the basement wall.

In such cases every precaution must be taken to make the tank absolutely watertight.

The inside of the tank should be finished with a coating of cement mortar in the proportion of 1 of cement to 1 of sand.

The tank should not be situated under a window or near to a door.

Construction of Septic Tank

The dimensions of the septic tank should be 4 feet 6 inches in length by 3 feet in breadth by 4 feet in depth. See figure 5.)

Wrought iron steps let in to the walls of the tank should be placed immediately below the manhole.

Final Disposal of the Effluent

Three methods of disposal have been referred to and these will be discussed separately.

Discharge of Effluent Into a Watercourse

The surface water supplies of Saskatchewan are very limited and they are all liable to be used as sources of domestic water supply.

It is contrary to the provisions of the Public Health Act to discharge any liquid wastes, including the effluent from a septic tank, into a stream, river or lake unless a certificate has been issued by the Commissioner of Public Health stating that the effluent in question may be discharged without injury or danger to the public health.

Such a certificate would, generally speaking, be granted subject to the construction of filter beds or some form of secondary treatment which would render the effluent free from offence.

Any person contemplating sewage disposal by this method should communicate with the Bureau of Public Health when a special investigation will be made of the circumstances.

Discharge of Effluent Into the Subsoil

This method is the most common form of disposal of a septic tank effluent. It is applicable only to a limited quantity of liquid, such as that represented by the flow from a residence of average size.

Its success depends almost entirely on the porosity of the ground.

The subsoil throughout the greater part of this province is a non-absorbent clay, and the general adoption of this method of disposal in Saskatchewan must therefore be attended by difficulties.

The discharge of sewage or of a septic tank effluent into the subsoil within the limits of any city, town or village in Saskatchewan is contrary to the provisions of regulations issued under the Public Health Act.

The Use of An Absorption Field

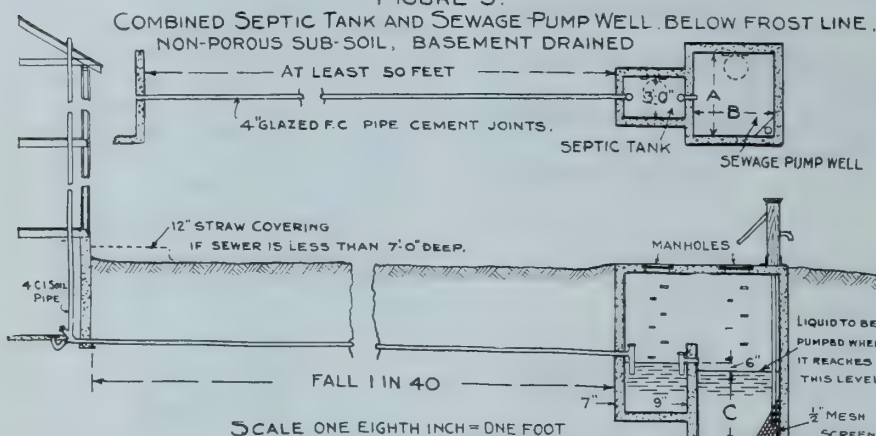
The effluent from the septic tank overflows into a "dosing" or syphon chamber which gradually fills to a certain level and discharges its contents at intervals by means of an automatic syphon into a series of open-jointed field tiles laid under the surface of the ground.

The liquid is thus gradually absorbed by the subsoil or soaks through to the under-lying strata.

It must be obvious that if the ground is not porous, that is, if there are no indications of sand or gravel, or if it is already waterlogged, this means of disposal cannot be adopted with success.

It has frequently been asserted that a clay subsoil may be made to absorb a septic tank effluent by placing the tile pipes in a bed of broken stone or other coarse material.

FIGURE 3.



part of the solids from the sewage but it does not necessarily remove or destroy any disease organisms which may be present in the sewage as it enters the tank.

Nor is the effluent free from offence. If allowed to pond on the surface of the ground it will create a nuisance.

A septic tank will not continue to operate indefinitely without attention.

Although the purpose of the tank is to liquefy the solids, a certain amount of solid matter and residue will accumulate in the tank and will require removal once or twice yearly.

Location of Septic Tank

The excavation necessary for the tank may be greatly reduced if advantage is taken of any fall which there may be in the ground surface.

The soil pipe should be led from the house at the point nearest to the site of the tank.

Too frequently the plumbing is completed without any consideration being given to the location of the tank and disposal area, resulting in the latter being sited to suit the soil pipe.

In view of the low temperatures of our winter it is necessary to consider every means by which the contents of the tank may be protected against frost and for this reason the septic tank may

This size of tank should be used in all installations for 12 persons or under.

For larger installations the capacity of the tank should be equal to 24 hours flow of sewage estimating the latter at 30 gallons per head per day.

The depth of the tank below water level should never be less than 4 feet.

The length of the tank should be in the direction of flow and should be about one and one-half times the width to give uniform flow through the tank and to ensure that the outlet is reasonably distant from the agitation caused at the inlet.

The inlet to the tank should be baffled by discharging the sewage through a T pipe which should extend 15 inches below the water line.

The effluent from the tank should be drawn off at a similar depth below the surface, through a T pipe, to prevent the discharge of any scum.

The gases which are formed by the bacterial action in the tank escape through the inlet T piece along the inlet pipe and through the soil pipe to the roof of the house.

An airtight cover must be provided for the tank. This should be a concrete slab with cast iron manhole cover and frame of sufficient size to permit of the tank being inspected and cleaned out.

Statements like this are entirely misleading.

If the ground is sandy and will absorb a certain amount of liquid, its ability to absorb the effluent may certainly be increased by surrounding the tile pipes with broken stone or gravel. But if a 6 inch diameter hole drilled in a bed of clay were filled with water and it was found that the water did not soak away it would be futile to enlarge the hole to 18 in. diameter and to line it with stones as a means of making the water soak into the ground. The effect would simply be to increase the capacity of the

of the treated effluent—and in the absence of a porous subsoil it is only throwing away time and money to construct an absorption field.

Design of Syphon Chamber

If the ground is suitable for an absorption field a syphon chamber should be built to discharge the effluent of the bed intermittently. The syphon chamber should be constructed along with, and should form a second chamber to the septic tank (See Fig. 5). The capacity of the syphon chamber should be such as to cause the field to be flushed about

syphon overcomes the pressure of the column in the short leg and part of the sewage in the latter is forced out.

This starts the full flow through the syphon which continues until the sewage in the syphon chamber falls to the under side of the bell, when air is again admitted, the pressures are equalized and the flow ceases.

An overflow pipe from the syphon chamber is necessary in case the syphon should fail at any time. This even flow acts also as a vent pipe to provide air for the syphon. Vent pipes should also be left in the wall, which divides the septic tank from the syphon chamber, if this wall is carried up to the roof of the tank. A manhole similiar to those specified for the septic tank is required in the cover of the syphon chamber and wrought iron steps may be provided to facilitate inspection.

Construction of Absorption Field

If the effluent were to be discharged into the subsoil directly it left the tank the ground surrounding the house would be fouled. A fire-clay pipe with tight joints should therefore be laid with a fall of 1 in 100 from the syphon chamber to a point at least 35 feet from the house, where a distribution chamber or manhole should be constructed. From this manhole the effluent is run through open-jointed tiles and absorbed by the ground (See Figs. 1 and 2). As a general rule 50 feet of field tile should be provided for each person in the house or 300 ft. for a household of six. In subsoils of sand or gravel the amount of tile per person may be reduced to 40 or even 30 lineal ft. The lines of tile should be laid 4 ft. apart, with a fall of about 3 inches in 100 ft. The field may be conveniently excavated by means of a team and scraper.

Open tile drains should be laid on and surrounded by a 9-inch bed of broken stone, brick bats, gravel or other coarse material to facilitate the absorption process and to prevent the entrance of sand

hole for holding water. Similarly the construction of an artificial absorption bed in a clay sub-soil is equivalent to providing a reservoir to hold the sewage and it will only be a matter of time until the trenches become water-logged and the sewage backs up into the septic tank.

Underground Filtration

In other parts of the Dominion where nature has been more generous with her watersheds the system of sub-surface distribution is used extensively in conjunction with a surface outlet for the effluent. In such cases the field tiles are underdrained and the subsoil is used as a filter instead of as an absorption bed. The septic tank effluent, after filtering through a few feet of sand or gravel, is collected by underdrains, the action of the bacteria which are present in the subsurface layers of soil oxidizes the sewage before discharge and an inoffensive effluent is discharged into a watercourse or on the ground surface.

Unfortunately this method is incapable of general application in this province, owing to the difficulty of obtaining a surface outlet.

Absorption Field Useless in Clay Subsoil

The treatment and the disposal of a septic tank effluent are two distinct and separate problems which must not be confused. The treatment effected by the action of the nitrifying bacteria in the soil does not solve the problem of disposing of several hundred gallons of liquid daily.

This is the real difficulty which presents itself on the prairie—the disposal

three times in the 24 hours. Taking the daily flow at 180 gallons this would mean flushing capacity in the syphon chamber of 60 gallons or 10 cubic feet or a chamber 3 ft. long by 3 ft. wide by 17 inches deep.

A syphon chamber of these dimensions will be suitable for systems constructed for 12 persons or under. The action of the automatic syphon which doses the sewage on to the field is as follows:

The U trap is filled with water and as the sewage flows into the syphon chamber air is entrapped in the bell which covers the long leg of the U.

FIGURE 4.

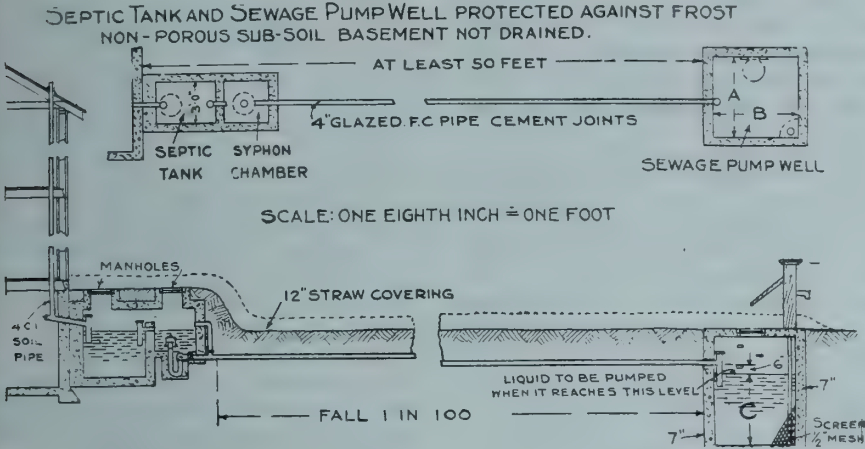
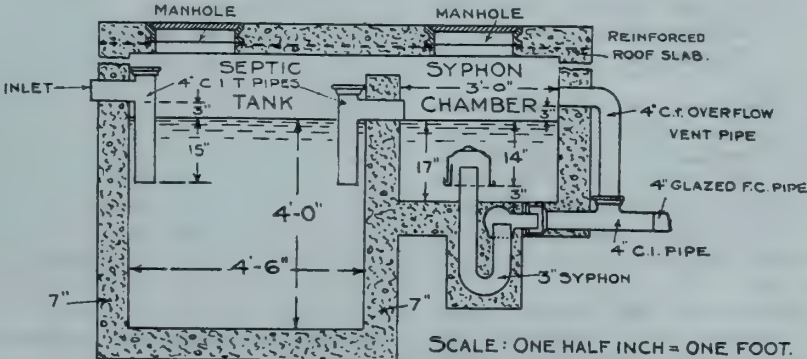


FIGURE 5. DETAIL SECTION OF SEPTIC TANK SHOWN IN FIGS. 1, 2, 3 & 4 AND OF SYPHON CHAMBER SHOWN IN FIGURES 1, 2 & 4.



The sewage is prevented from discharging by the weight of the liquid in the short leg of the syphon. When the surface of the sewage has risen high enough in the syphon chamber the resulting head on the bell end of the

or earth at the open joints of the pipes. If gravel is available locally the whole excavation may be covered to advantage with a nine-inch layer before the field tiles are placed in position. Care must (Continued on page 29)

Relation of Physiology to Ventilation

Some Theories of Interest to Heating and Ventilating Engineers
—Alteration of Few Per Cent. of Carbon Dioxide in the Air
Breathed Cannot Have Much Effect on its Suitability for Breathing

HERE are few subjects on which it is easier to theorize than ventilation. Theorizing is easy because experimental work is extremely difficult. Only those who have spent a great deal of time in endeavoring to obtain self-consistent and definite results from experiments on matters connected with ventilation can realize how difficult it is to lay down any definite laws on so complicated and nebulous a subject, said A. H. Barker, B.Sc., at a meeting of the Institution of Heating and Ventilating Engineers, London, England.

Most well-informed ventilating engineers are now aware that the theory of ventilation has during the past few years undergone some very striking and almost revolutionary alterations. I propose in the present paper to discuss some

guard to the fact that expired air is unquestionably deleterious, one is apt to jump to the conclusion, which indeed appears at first sight obvious, that the carbon dioxide in expired air is the poison which is to be guarded against by free ventilation of spaces inhabited by human beings.

Further reflection on the physiological aspect of the matter led to the enquiry how this presumed poisoning of the human mechanism takes place. Analysis of air found in the inside of the lungs revealed the fact that it never varies very greatly from 500 parts of carbon dioxide in 10,000 of air, and that the CO_2 in the blood only varies by a minute fraction, and that CO_2 of animal origin is in no way different from the chemically manufactured article.

In the light of these undoubted facts

already in the lungs. Here it became necessary to formulate some other theory. Various such theories were adopted in succession, only to be disproved; for instance, that the diminution in the quantity of the oxygen in the air had anything to do with the matter. This was shown to be impossible.

It was also proved that there are no organic poisons, bacteria or particles of any kind in the expired air of a healthy person. Naturally diseased persons do disseminate their own specific pathogenic bacteria in their breath, but this fails to account for the undoubted fact, which should never be lost sight of, that it is actually generally deleterious and debilitating to a human being to live in a shut-up space, and so breathe the same air over and over again, even though no specific disease is communicated.

That, however, is perhaps not a perfectly accurate way of expressing the fact. It is not the fact of living and re-breathing the same air which is deleterious, but living in air which is in an unsuitable condition, whether the same air has been previously breathed or not.

The outstanding point to observe is that it has apparently been definitely proved that it is not the alteration in the chemical, nor the bacteriological, nor the particulate composition of the air which produces these generally deleterious conditions, but something else.

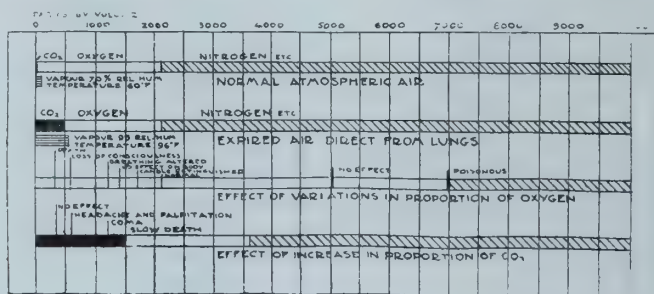
So far as its chemical action is concerned, the exact quality of the air appears to be of little moment. The operation of breathing, and the effects produced in the body by that vital function are, of course, chemical in character.

The chemical quality of the air in the sense of its oxygenating power is its important characteristic. The oxygen becomes dissolved in the blood, and this is carried by the circulation to all parts of the system. The food is thereby oxidized, and the energy liberated. But it is easily shown that there is quite enough oxygen, even in extremely bad air, to satisfy the needs of the body in this respect.

For the process to be carried out quite satisfactorily almost any form of air will serve which contains much less oxygen even than extremely bad air itself, and which is not charged with poisonous gas.

Carbon dioxide is not a poisonous gas, as, for instance, carbon monoxide is. The essential reason then why air must be fresh, if it is to be satisfactory for living in, is not that if it is otherwise,

(Continued on page 29)



of these theories in outline, and to point out the effect on design and cost which they would effect if they were adopted.

The alterations in the view taken of the function of ventilation originally proceeded from a consideration of the fact that carbon dioxide, at any rate when not of animal origin, and in moderate quantity, does not appear to exercise any deleterious effect whatever upon the human organism. The discovery itself is not of recent date. It is at least fifty years since it was pointed out by an eminent Frenchman that carbon dioxide is not a poisonous gas except in great concentration.

Up to the time when this view penetrated the consciousness of physiologists it had been customary to regard the carbon dioxide in expired air as the essentially deleterious product, and the introduction of that gas as the cause for the undoubtedly bad effects of living in vitiated air.

The theory was that since a person who is immersed in air having a large proportion, say above 300 parts in 10,000 of air, of carbon dioxide, cannot live, he contracts what is called carbon dioxide poisoning, and as undoubtedly the effect of breathing air is to add to the amount of carbon dioxide in it, and having re-

it appears obvious that the alteration of a few per cent. in the air breathed cannot have such an enormous effect on its suitability for breathing. I show in Fig. 1 a proportional diagram to illustrate these figures.

It was found also that however bad (in reason) the air which one breathes may be, it has no perceptible effect on the composition of the air as maintained in the lungs by the process of breathing. It was shown that the only effect of an increased quantity of CO_2 in breathing air is an automatic one, namely, to cause a person immersed in air in which there is an abnormally large proportion of CO_2 to breathe more deeply as that proportion increases, the degree being somehow regulated automatically in such a way that the proportion of CO_2 actually in the lungs is kept perfectly constant, and that until the concentration of CO_2 in the breathing air becomes so great as to get beyond the capacity of the proper working of this automatic mechanism, no ill effects can be detected.

Analysis of the air in some of the most grossly overcrowded buildings ever found in practice reveals the proportion in 10,000, which is less than one-tenth of the degree of concentration of the air

Heating and Ventilating

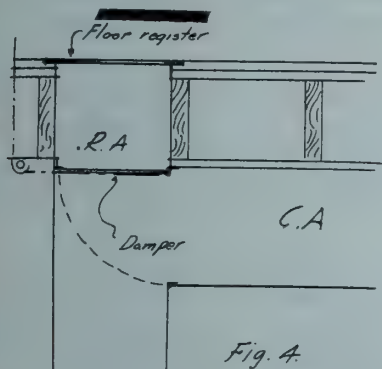
Combination Heating Systems

Written exclusively for Sanitary Engineer by N. A. Kearns

(Continued from last issue)

Underground Ducts.

When air ducts are run underground they should be made of permanent materials. If the installation is not very large, these ducts may be made of glazed tile pipe, well cemented at the joints. However, it is only in a small plant when tile pipes may be used. In the majority of cases the underground ducts



must be built of brick or of concrete.

An underground duct of brick is shown by Fig. 8.

The thickness of the side walls must be in proportion to their depths. For a duct not over 3 inches deep, the walls may be four inches thick. When the depth is more than 13 inches, and less than 36 inches, the thickness of the walls should be nine inches.

Before the side walls of the duct are started, the trench bottom should be well

water, field tiles with open joints must be provided and set so that the earth surrounding the duct will be kept perfectly dry. These "weepers" must not be connected to the house sewer; a separate outside drain must be provided.

The concrete floor of the duct is to be built of concrete. The walls of the duct are to be built of hard-burned brick, smoothly plastered with water-proof cement. After the walls are set, the pavement slabs, of concrete, are placed in position and the basement floor finished over the top.

Manholes, or some other means of access to the duct, should be provided so that the duct may be inspected at intervals.

When an underground duct is built in damp ground, or when it is difficult to install a suitable drain, the outside walls

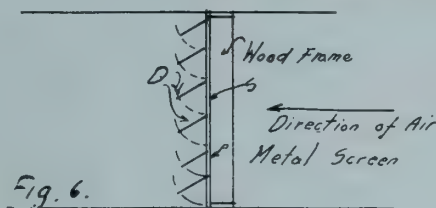


Fig. 6

of the duct and the underside of the trench bottom must be water-proofed.

Size of the Duct.

The area of the cold-air inlet must not be less than three-quarters of that of the combined areas of the warm-air leaders. In fact, it is well, when possible, to provide for an area in the cold air duct equivalent to that of the warm-air outlets.

When an air-supply duct is too small it is often found that some of the lower hot-air registers are acting partly as return air faces. The air which returns by way of the register faces does not pass down to the bottom of the casing; it simply mixes with some of the warm air in the upper part of the bonnet and thereby absorbs no heat from the hot castings.

Return Ducts.

An inside-air-supply duct should always be provided so that the building

may be quickly heated when no ventilation is required.

It is rather difficult to design a combination inside and outside cold air supply because of the difference in temperature of the two currents of air. The outside air being colder than that of the inside is apt to have a velocity

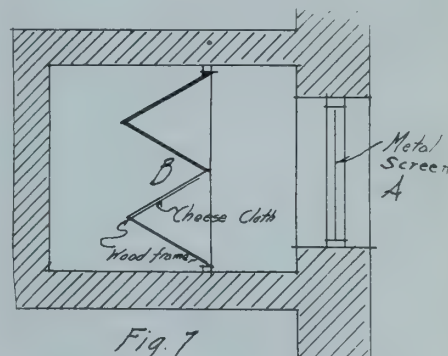


Fig. 7

high enough to fill the entire area of the supply duct and in this way retard the flow of air in the return, or inside, air duct.

Fig. 4 shows a combination return and cold-air supply. The cold air from outside enters by way of the duct "C.A." The return air flows through the floor register. A damper closes the passage "R.A.," while it opens the passage "C.A.," and vice-versa. The damper should be made perfectly air-tight with its edges faced with rubber or felt.

The cold-air duct "C.A." should be covered with mineral wool, or some such insulating material, otherwise the floor above will be chilled by the cooling surfaces of the galvanized iron intake pipe.

Equalizing Valves.

When a cold air intake is situated so that it is subject to much variation of

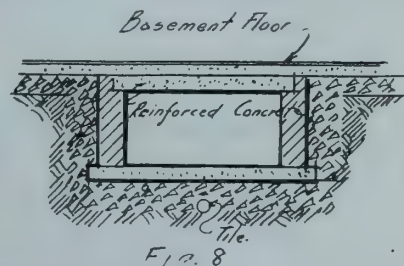


Fig. 8

wind pressure it is necessary that some form of equalizing valve be installed. Fig. 5 illustrates a suggestion for a valve of this nature.

In this drawing a screen (A B) is shown pivoted at P. At either end of (Continued on page 26)

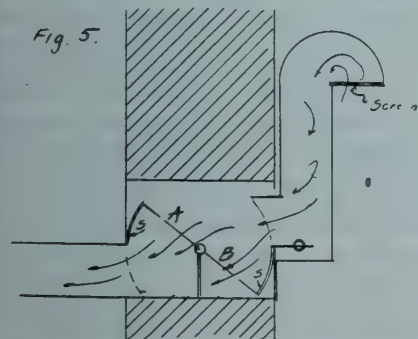


Fig. 5

graded and tamped down. Broken stone should then be set to form a solid bottom for the floor and footings of the duct.

If there is any evidence of subsoil

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JUNE 1, 1921

No. 11

Sanitary Engineers on Boards of Health

WHATEVER may be the general view regarding the presence of sanitary engineers on local Boards of Health it is certainly important that more responsibility should be placed on the shoulders of the sanitary engineer and an improved status given to the profession. Plumbing, garbage and refuse disposal, water-supply, sewerage and sewage treatment are problems primarily in sanitary engineering, and require constructive engineering capacity to deal with them.

The encouragement of the sanitary engineer by enlarging his functions and putting him in direct charge of the correction of defective sanitation is necessary to secure the improvement of sanitary conditions. He should be the official responsible for a great deal of the preventive work that is needed so as to overcome the growth of evils that are so difficult and costly to remedy. Most of the defects in housing in Canada are due to neglect of control of sanitation. Sanitary inspectors are too often chosen without regard to their fitness as engineers. If we are to have a better trained profession in sanitary engineering we must give more scope for the men who enter it and the higher standards of pay and responsibility that will attract skilled men. This is no reflection on the important part played by the medical profession in municipal work, but a suggestion that their work should be supplemented by engineers having a special training and knowledge in sanitary work. Certainly the present system of control of sanitation is not satisfactory, and the time is opportune for considering whether greater responsibilities and improved status should be given to engineers on provincial and local boards of health.

Important Sanitary Measures

AT the annual proceedings in the meetings and conventions held by the Master Plumbers of Canada and the United States since they organized, the most important subject discussed was the sanitation of the interior of houses and structures connected with public sewers. It was unanimously held that the end and object of systematic system of plumbing and drainage of a house is to endow it with a good system of water supply, and also with discharge for waste water, and to reg-

ularly flush the interior of house drains with clean water of sufficient pressure.

And it was further resolved that the following essential rules be strictly observed which will free homes from deleterious gases and accomplish the object in view: to exclude from the interior of houses all foul air which arises in sewers; to avoid pollution of the soil by fecal matter, sub-soil and waste waters; to prevent dangerous gases in the soil and in the air below and around the houses; to discharge as rapidly as possible into public sewer all waste matter produced.

The application of these essential rules necessitates a proper plumbing and house drainage system of sewer, waste and ventilation pipes that are air and water tight and which will exclude from the house noxious gases generated in the public sewer; employment of proper material for the pipes of proper dimensions and thickness of all pipes used in this connection. Flushing and accessible cleansing junctions with very obtuse angles should be provided; proper construction of water closets, baths and lavatories free from porous defects, and highest porcelain nonabsorbent grade and finish and other sanitary measures incorporated, as well as facility for access to all interior of house drains, soil and waste pipes for inspection, flushing and testing them with clear pressure water; and in order to lawfully enforce these rules covering the sanitary construction of plumbing and house drains system.

Willing to Take Advice

EVEN the critics of the Minister of Finance and his Budgets are compelled to admit that Sir Henry Drayton is not above accepting the advice of competent business men and altering regulations to comply with their suggestions. True, he was slow to accept the advice of retail merchants concerning the luxury tax as outlined in the 1920 Budget, but that was his first effort along this line, and to make radical changes immediately after issuing it would seem to give evidence of weakness or lack of thought. However, it was adjusted satisfactorily and Sir Henry still contends publicly that the luxury tax served its purpose.

Much the same situation has arisen with the 1921 Budget as recently outlined fully in *SANITARY ENGINEER*. A number of the obvious difficulties of the first proposals were the subject of vigorous protests and this has resulted in a number of changes being made. The plan to allow wholesalers and manufacturers to absorb the sales tax and not show it separately would lead to great confusion, and it has now been definitely ruled that at least 1½ per cent. will be shown on each invoice from the manufacturer or wholesaler. This was the plan early agreed upon by wholesalers and manufacturers in Toronto. The decrease in the sales tax on lumber should also be of assistance in encouraging construction, or at least in removing additional burden on an industry which requires careful nourishing at this time, and this should help the plumbing industry.

Too Many Gas Poisonings Say Plumbers

Plumbers' Union in Toronto Appeals For Investigation of Gas Poisonings—Health Department Takes no Responsibility

"IN the interests of humanity," the Plumbers' and Steamfitters' Union of Toronto has appealed to Acting Chief Coroner George W. Graham to investigate cases of gas poisoning, which the union-officials claim are getting far too numerous of late.

W. J. Storey, writing to Dr. Graham on behalf of the union, points out that these deaths are due either to "poor workmanship, low gas pressure or carelessness," and demands that a full inquiry be held into each death of this nature.

The acting chief coroner instructed Coroner Julian Loudon to make a full investigation.

Dr. Graham has thanked Mr. Storey for his letter, asking him to get into touch with Coroner Loudon and furnish the Crown with any evidence in his possession.

Officials in the Medical Health Department deny any responsibility for gas leakages which have caused a number of deaths in the city recently, stating that inspection of gas pipes by that department is beyond their jurisdiction.

The by-law placing inspection of "plumbing and drainage" under the M.O.H. does not contain a single word about inspection of gas pipes, but officials declare that there is a bill at the Parliament Buildings, which, by the way, has been up there for five years, which would bring gas pipes in houses under the jurisdiction of the Department of Health.

The attitude of the Health Department is that gas pipes, a fruitful source of death, are not inspected by it because the Legislature or the Provincial Cabinet refuse to give it the necessary powers.

One official stated, in reply to a question, that if an occupant of a house complained of a gas leakage the sanitation branch of the Health Department always made an inspection and issued an order on the owner of the property to effect the requisite repairs, such complaints being handled on the ground that the leakage constituted a serious danger, not only to health, but to life. Unless advised of the leakage, the department, of course, would be unaware of the danger.

New Method of Sewage Disposal

Sewage Flows Through Channel Three Quarters of a Mile Long—In Contact With Highly Oxidized Mud

ALMOST every town of any considerable size is saddled with a heavy annual outlay for the disposal of its sewage. For obvious reasons, the town sewers cannot be allowed to discharge their contents into the nearest stream or river; while even on the seacoast shell-fish are destroyed or contaminated by the discharge of untreated sewage. The aim of all methods of treatment is to remove the solid matter and purify the liquid, or effluent, as it is called, so that no damage or unpleasant results follow its discharge into streams. The essential portion of existing sewage-works consists of a number of enormous filters, over which the effluent is sprinkled by means of perforated revolving pipes. These filters are composed of clinker, slag, or coke, to the thickness of five or six feet, and arrangements are made at the bottom so that air can circulate freely through them. The actual purification process is performed by bacteria which grow, in the form of a gelatinous mud, on the material of which the filter is formed; but a plentiful supply of air is needed to

enable them to carry on their function. This process takes up a large amount of land, involves a big outlay for machinery, and entails heavy charges for labor. Consequently efforts have been made in recent years to cheapen and simplify the process. These efforts have resulted in an improved method which has been greatly developed by Mr. John Haworth, F.I.C., F.C.S., the manager and chemist of the Sewage Disposal Department at Sheffield, says Chambers' Journal (England). The method consists in causing the sewage to flow through a channel with an effective length of nearly three-quarters of a mile. During its passage through this channel the liquid is agitated by means of paddles in such a way as to prevent the settlement of the solid matter, and to bring the fluid content in contact with the air at the surface to a sufficient extent to ensure its absorption of the necessary amount of oxygen from the atmosphere. It is also brought into intimate contact with highly oxidized mud containing the purifying organisms, and is thus effectively purified. At the end of the course the purified liquid is

run off continuously. Mr. Haworth compares the action to that of a river containing a very large number of oxidizing organisms capable of purifying putrescible matter. Some of the advantages of the process, compared with existing methods, are: (1) the capital cost is reduced to one-quarter or even one-sixth; (2) the area of land required is reduced to one-third; (3) the degree of purification is greater than that demanded by river authorities; (4) there is no nuisance from smell or flies.

PRACTICAL HELP FOR TINSMITHS

(Continued from page 16)

number of equal parts as from 1 to 7. From each point in this semicircle, draw lines to the base as 2¹-3¹-4¹-5¹-6¹. From each of these new points, draw triangular lines to the corners A and B. This divides the elevation into triangles. It does not matter what shape, size or angle you design this boot to, the lines will work themselves out to what you are going to make, by following this treatment.

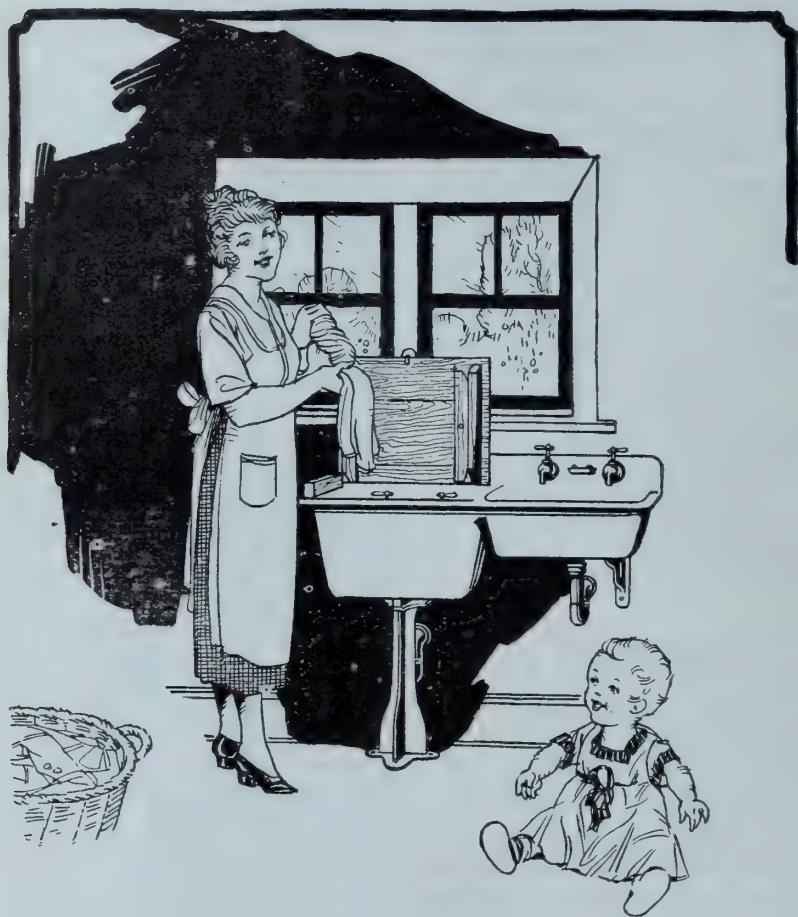
The next step is to develop the true lengths, and so for this we pick these elevation lines as A-1, 2-2¹, A-3¹, A-4¹ and set as T-1-2-3-4 on the horizontal line. From these new points on the horizontal line square up lines equal to the half sectional line of semicircle as 2-2¹, 3-3¹, 4-4¹, and this gives points 1-2—3-4 in diagram. When lines are drawn to H you have the true length for the lower half of boot. To get the upper half pick those lines as B-4¹, B-5¹, B-6¹ and B-7¹ and set as t-4-5-6-7 in diagram on horizontal line. Then from these points erect lines to suit those half sectional lines 4-4¹, 5-5¹, 6-6¹. After this draw lines from each of these points to h and you have the true lengths for the upper half of elevation.

To set out the pattern draw any line as A-A¹ equal to twice the length of H-T of section per stack. Then pick the true length h-1 from diagram and using A and A¹ in pattern as center, strike and cross arcs in point 1. After this pick one of the spaces as 1-2 from semicircle of elevation and using point 1 in pattern as center, strike small arcs as at 2. Then pick true length H-2 from diagram and using A and A¹ as centers, cross arcs in point 2. With the radius of 1-2 and using point 2 as center, strike arcs as at 3. Pick true length H-3 and using A and A¹ as center, cross arcs in point 3. Repeat and strike small arc 4 from center 3 and then cross this with line H-4 of diagram.

After this, pick the miter line from elevation as A-B and using A and A¹ as centres, strike arcs as at B. Then pick true length h-4¹ and using point 4 in pattern as center, cross arcs in point B. After this repeat the development, using B as center until point 7 is established, and use those true lengths as

(Continued on page 26)

Business To-day For T



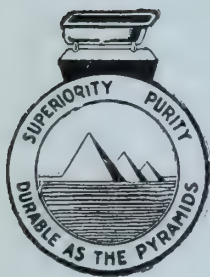
PORT HOPE

BUSINESS may be called
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Nevertheless, all aggressive
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NEW PLUMBING GOODS

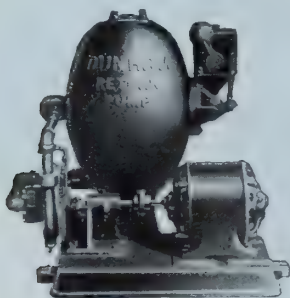
ANOTHER ADDITION TO LIST OF CANADIAN MADE PRODUCTS

The C. A. Dunham Co., Ltd., Toronto, have placed on the market a condensation pump unit, especially adapted to low pressure steam heating.

The unit consists of a centrifugal pump direct connected to an electric motor, mounted on a cast iron base with receiver and automatic float switch for "Stopping" and "Starting" the Motor.

These units are built in two sizes for 16,000 or less and 30,000 square feet capacity of direct radiation, and for maximum discharge head at the pump of 20 pounds.

The switch is enclosed, of sliding contact type and approved by the Ontario



Dunham Return Pump

Hydro Power Commission, Laboratory License No. 361. This addition to the line of Dunham Specialties is claimed to fill a pressing need, for satisfying the demand for better and more economical heating.

Many steam heating installations have been made when faulty piping or lack of head room between return mains and water line of boiler resulted in poor circulation of steam to the radiators. Many times, the return pipes are so low that it is impossible to return the condensate to the boiler by gravity and has been allowed to waste away to the sewer.

The application of this unit is said to overcome such difficulties and avoids the waste.

NEW FLUID SOLDER

What is claimed by the manufacturers to be an entirely new product for the soldering of all kinds of metals is Wyatt's fluid amalgam. This preparation is being handled and placed on the market by Wyatt's Products, of 225 Richmond street, Toronto, Ont., and the following are some of the claims made for it by the producers.

Amalgam is free from acid, is non-corrosive, non-explosive and non-inflammable. It has no poisonous fumes and will solder any metal or combination of metals, with the exception of aluminum. With it, in conjunction with solder, repairs of any kind can be made. It is

said to be specially adaptable for repairing leaky pipes, boilers (domestic), radiators, farm implements, automobile parts, electric and other wire connections.

The mending of band saws has generally been considered a difficult task to properly perform. This the manufacturers claim amalgam will do without affecting the temper of the steel. Being practically harmless, it may be handled with impunity. The product is put up in bottles up to 8 oz. sizes, and in tins from pints to gallons. Free samples are being distributed.

SUGGESTS BETTER LIGHTING FOR DISPLAY WINDOW

Merchants' lack of taste and foresight in window illumination was emphasized by an electrical engineer in a recent address in Toronto. His principal criticism was that the apparent objective of the business man was to create a glare which would outshine that of his neighbor.

He criticized the strong, unprotected nitrogen lamp window illumination as so dazzling as to repel customers. The source of illumination, he said, should not be seen at all, the light being gently reflected on the goods from above.

COMBINATION HEATING SYSTEMS

Continued from page 21

the screen there is placed a shutter (S). The area of the screen is greater at A than it is at B. Now, when wind drives in with some force it will depress the screen at A, and this will partly close the openings by the shifting of the shutters. A movable weight is shown at W. This weight may be adjusted to suit the pressure that should exist before the area of the openings need be reduced.

Back Check Valves

When a return-air duct is used in connection with a cold-air intake it will be necessary to plan a back-draft damper in the return-air duct. This damper is to prevent the cold air entering the house by way of the return-air duct.

A back-draft damper may be arranged as shown in Fig. 6.

In this drawing the letter S indicates a screen of galvanized wire stretched on a light wooden frame. The letters "d" indicate narrow strips of oiled silk with overlapping edges.

When the air is passing in the proper direction its force will hold the oiled silk checks away from the screen. A back-draft will close the silk checks against the screen.

Air Filters

Where there is danger of dust entering the cold-air inlet, some arrangement should be made whereby some of the dust may be removed from the air.

A screen of cheese-cloth may be set in a wooden frame, whereby provision is made for the easy removal and frequent washing of the cloth. A cloth screen must be washed very often as otherwise the dust in a short time will entirely close the pores of the cloth.

The area of the screen should be at least ten times that of the fresh air inlet.

Fig. 7 shows how a dry filter may be installed.

The cold air enters the room by way of the screened opening A. It then passes through the filter B.

The filter cloths are set in a wooden screen backed with galvanized wire screens. The purpose of the screens is to prevent the bagging of the cloth.

The filters are set diagonally to the fresh air intake so that a greater area of filter may be provided than would be possible were the screen placed at a right angle to the line of direction of the air current.

PRACTICAL HELP FOR TINSMITHS

Continued from page 23

h-5-6-7. When this is done, pick the half length of stack as H-T and using B as center, strike arcs as at B¹. Now pick the elevation throat line as B-7 and using point 7 in pattern as center, cross arcs in point B¹. This enables drawing the outline of pattern as shown. After this, we add the collar above the miter, as A-D and B-C, by using these distances as radii, and describing arcs from A, B and B¹ as at D-C-C. By drawing lines tangent to these arcs and squaring out your miter lines you have the entire lay-out finished.

The 2 piece angle which fits to this round end, can be made to anything or preferably 2 pieces of 4 piece elbow are generally used, but this is an after consideration and the workman will have to adjust this to suit his ideas of installation.

TIN.—Activity in foreign markets, which followed the favorable outcome of the reparation negotiations, led to a further advance in the price of tin. This is reflected in Toronto by another two-cent rise, the quotation now being 40½. Although the tone is stronger, activity is reported to be quiet.

COPPER.—United States sources report that a strong tone prevails in the copper market. Prices still trend upward under an improved sentiment and strengthening conditions. The foreign situation is reported as decidedly better, with domestic consumers relaxing. Toronto indications are practically unchanged, with many inquirers reported, but few actual buyers. Quotations remain at 18 cents.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

Article No. 32 of Series—Illustrations No. 38, 39, 40

(Continued from last issue)

ALL vitrified pipes should be well jointed, the utmost care being taken in order to obtain a thoroughly watertight joint. The cement used should be of the very best Portland, free from excess lime.

The cement may either be neat or in the proportion of one cement to one sand—never more—and the joint should be carefully cemented, not only on the top, but all around, including the invert, as the lower part of the pipe is usually carrying off the sewage, consequently should be perfectly watertight. Especial care and attention should be given by the workman before making the next joint that none of the cement has been forced into the interior of the pipe, otherwise it will always interrupt the proper flow of sewage and lead to obstructions. A pipe scraper made of wood struck to the radius of the pipe should always be used by the pipe joiner for scraping out all surplus cement that has oozed through the jointed pipe.

All pipes, when laid, should be well inspected and examined by some competent person and the various lengths

occurs) to cause fracture to either the pipe or joint. There are various patented joints on the market composed of bitumen, asphalt, etc., which can be utilized in wet soil, running sand, etc., and which undoubtedly give better results in bad grounds than the rigid cement joint, as the latter will not give in the least and any movement of the pipe after laying means the cement

above the water line, and will in time lead to a blockage of the pipe. These junctions are made and carried in stock for all standard sizes and can be easily obtained. Under no circumstances whatever should a connection be made by knocking a hole in the main drain.

Pipes, whenever possible, should run in a direct straight line and if possible all bends should be avoided. In the majority of cases this cannot be carried out in practice and then the curves should be made as easy as possible by installing standard regular bends and it is very poor construction to use the straight pipes for overcoming this difficulty. Same can be used by the space left in the socket but it makes a very bad joint, both internally and externally,

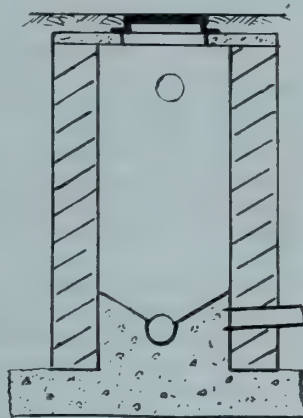


FIG. 39.

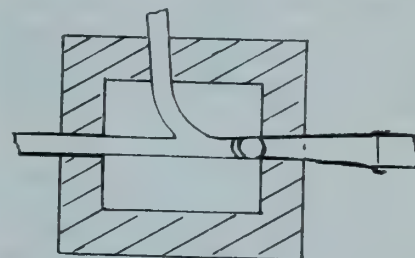


FIG. 40.

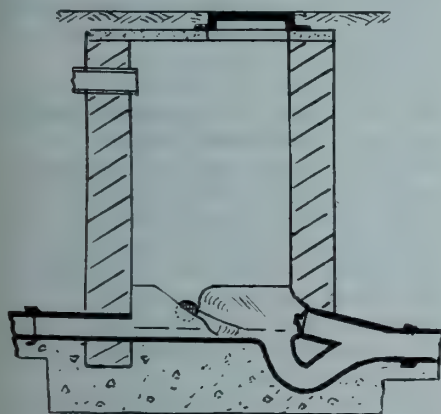


FIG. 38

should be tested as to being watertight by one or other method to be afterwards described.

In replacing the soil the first portion next to the pipes and joints should be selected and well packed under and on either side of the pipes to prevent future settlement, which is always liable (if it

cracking, consequently a leaky joint. Patent joints are only used under exceptional circumstances and are more costly than the ordinary cemented joint and the patented joints are seldom used in small or private installations, so will not be described in detail in this book, but in very bad ground, unless the pipes are laid on a solid foundation of concrete, it would be advisable to install same to ensure first-class drains. In no case should clay joints be used in preference to cement as they are always liable to deteriorate and lead to leaky drains.

Junctions from the branch drain to the main drain should always be in the form of a Y and no branch should connect with another by means of the T or at right angles. The sewage should always enter the main drain in the direction of its flow, otherwise splashing will occur, which through the small diameter of the pipe will leave a deposit on the pipe from the drying sewage splashed against the sides of the pipes

and should never be allowed as it interferes with the easy flow of sewage and weakens the construction of the pipes at every joint.

BRITISH MANUFACTURERS' REPRESENTATIVES VISITING CANADA

A pilgrimage of British manufacturers' representatives towards Canada has set in. Numbers of them have been arriving on almost every boat, both by Canadian and New York routes. Generally speaking, they have come to investigate the possibilities of doing business with Canadians. Intelligence reaches Toronto that many more are coming, and this year promises to be a banner one in this respect. Lines represented include pressure-gauges, disinfectants, door furniture, sporting goods, toys, traveling leather goods, bicycle accessories, lamps, etc.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—A. Laflamme & Co., plumbers, have dissolved.

Montreal.—Maltbie & Taillefer, plumbers, have dissolved.

NEW FIRMS

Ward & Wilson have commenced business at 906 Dundas Street West, Toronto.

Albert McBride has commenced business at Long Branch, Ont.

MOVING TO LARGER PREMISES

Hamilton, Ont.—Owing to increased business J. & G. Inrig, plumbing and tinsmith merchants, of Lock Street, Hamilton, are moving to larger premises on June 15. The new address will be 206 Lock Street.

OBITUARY

New Hamburg, Ont.—Wm. Heimbeck, plumber and tinsmith, is dead.

SARNIA TO VOTE ON WATER-

Sarnia.—The city council at a special meeting set June 6 as the date on which Sarnia ratepayers will vote on a by-law to raise \$95,000 for waterworks purposes.

WELLAND PLUMBERS BACK

Welland, Ont.—The plumbers' strike is ended and the men have returned to work at 80 cents an hour. The men went out when it was announced that a cut of ten cents would be put into effect. The new agreement will be effective till August.

INCORPORATIONS

Chamberlain Desolvó Co., Ltd., has been incorporated with capital of \$40,000; head office, Toronto, Ont.

CONVENTION IN QUEBEC, NOT MONTREAL

In the last issue of Sanitary Engineer an item appeared listing the names of Montreal master plumbers who were delegated to attend the convention of the Canadian Society Domestic Sanitary and Heating Engineers. It was erroneously stated that this convention was in Montreal. This convention is to be held in the city of Quebec on June 6, 7, 8.

HAMILTON NOT SUCH A SMALL CITY

Hamilton, Ont.—A manufacturer and a supply man from Toronto got lost in Hamilton on Tuesday night of last week

in the small hours of the morning, having come to this city with some friends to spend a social evening interspersed with some business. They have now concluded that Hamilton is not such a small city.

WESTERN ONTARIO NEWS

F. D. Bates, Ridgetown, Ont., wants prices on heating, plumbing and electrical work for new residence costing \$6,000.

Plans are being prepared at Fergus, Ont., for a new two story lavatory building for the high school. Prices wanted on equipment. Dr. H. W. Armstrong, chairman.

William Clouse, of Brussels, Ont., is preparing plans for new residence to cost \$5,000 and wants prices on heating, plumbing and electrical work.

Hartley Berry, of Tillsonburg, Ont., has commenced erection of a new residence to cost \$4,500 and wants prices on hot air heating, plumbing and electrical work.

The Fireproof Warehousing Co., 717 Richmond St., London, Ont., is preparing plans for new building to cost \$50,000, and is interested in prices of heating and electrical equipment.

R. Ryan, of the hardware firm of Ryan & Co., is dissolving the partnership in the business at Amherstburg and will go into business as a sanitary and heating engineer.

Prices are wanted on well drilling outfits and equipment by E. V. Buchanan, general manager of the Utilities Commission at London, Ont.

S. Fisher, Ridgetown, Ont., is preparing plans for new \$4,500 residence and wants prices on heating, plumbing and electrical work.

John Grant, 24 Central Ave., London, is calling for tenders for new residence to cost \$15,000 and wants prices on hot water heating, plumbing and electrical work.

The township council is calling for tenders for the Oxbow drainage system in London township. Work will cost \$10,000 and tenders will be received by M. Grant, 110 Dundas St., London, until June 2.

John Collins, Putnam, Ont., wants prices on hot air heating and plumbing for new \$7,000 residence he is just starting.

Eggett & Co., of London, Ont., secured two contracts in the past few days in the shape of the plumbing and heating

for the new \$300,000 Collegiate Institute and a new public school to cost \$160,000. Steam heating plants will be installed in both buildings.

TENDERS FOR SCARBORO WATERWORKS

Birch Cliff, Ont.—Scarboro Township Public Utilities Commission is receiving tenders for construction of a pump house, reservoir, pumps and filter equipment.

Preliminary work on the southern waterworks system proceeds rapidly. Attention is at present centred on the intake wells on the lake shore, and the foundation for the pump house is assuming shape. Advantage will be taken of weather conditions for the laying of the intake pipe around the first week in June.

CITY TAKES GOVERNMENT TO TASK

Toronto.—The city indirectly is taking the Government to court for a breach of the drainage by-law. Drainage work is being undertaken at Knox College and an inspector of the civic Health Department is summoning the owner of that property to court for not complying with the by-law, but, it is stated, the Government is stepping in with the statement that it is doing this work and does not have to comply with the by-laws.

GETTING ALONG FAMOUSLY WITH HIS NEW CAR

W. J. Mellett, who is representing Empire Brass Mfg. Co., London, Ont., in the territory north and east of that city, recently adopted an automobile to help in the covering of his ground. A letter received from Mr. Mellett by H. McAlpine, plumbing supply department of the company, concerning the innovation is as follows:

"I have great pleasure in reporting that 'Lizzie' and I are getting on famously together. We are travelling rather slow as yet, as we do not quite understand one another's temperaments, but in the course of a few days I think we shall do better and more smoothly. I realize her capabilities for climbing ditches, but so far I have not asked her to extend herself in climbing trees or telegraph poles, but I have such confidence in her power that when asked nicely to do any of these acrobatic feats, she will easily accomplish them."

Waterworks, Tenders, Construction, Contracts Awarded, Etc.

Wm. Brundage, of Kingsville, Ont., wants prices on heating and plumbing for new \$5,000 dwelling for which he is preparing plans.

Plans are to be prepared immediately for new chlorinating plant and new filtration plant at Goderich, Ont., following orders received from the provincial Board of Health.

Work will be commenced early in June on new warehouse at London, Ont., for Crane, Ltd. The firm also plans to erect a large branch on Wellington Street at Hamilton.

TENDERS WANTED

Kingston, Ont.—Stevens & Lee, Toronto, have called for tenders for the service building at the Kingston General Hospital. Tenders to be in the nature of a general contract will be received up till June 3. The new building is the first to be erected under the rebuilding plans for the hospital.

AGENCY FOR STEAM AND HYDRAULIC FITTINGS

W. J. Brown, 117 Youville Square, Montreal, has secured the Eastern Canada agency for Payne & Griffith, Birmingham, England, manufacturers of steam and hydraulic fittings and motor car gauges. Payne & Griffith have bought the sole rights for the manufacture of Probert & Bridges high and low detectors for steam boilers.

RESERVOIR FOR MELVILLE, SASK.

Melville, Sask.—Aiming to secure a railway water supply for Melville, a contract for the excavation of a reservoir has been awarded to Tomlinson and Fleming, general contractors, of Toronto.

The contracts for the pipe line from the reservoir to the water tank at Melville have been awarded to C. L. De Vall, general contractor, Edmonton. The amounts of the contracts are said to aggregate in the vicinity of \$400,000.

The enterprise is being energetically pushed ahead, and the western contractors are already on the ground. The ultimate water requirements are being based on one hundred million gallons per year.

Catalogues and Booklets

NEW PLANT OF THE WEIRTON STEEL COMPANY

A. C. Leslie & Co., Ltd., Montreal, are in possession of a booklet containing the re-

print of an article appearing in recent issues of the Iron Age on the new steel plant of Weirton Steel Co., Weirton, W., Va.

The article is illustrated by photographs and drawings showing the extensive plant with its blast furnace, open hearth furnaces, and mills for producing sheet bars, billets and slabs, also its labor-saving equipment which is prominent throughout. A. C. Leslie & Co., Ltd., are Canadian sales agents for products of this extensive plant, which include: basic pig iron; O. H. steel blooms; slabs, billets and sheet bars; coke tin plates, best cokes, silver finish, egg shell finish, canners, special, gold lacquered, extra cleaned for lithographing, charcoals, ternes, (copper bearing steel base) carrying coated of 8-lb to 40-lb. inclusive, tea-tray stock, Weirton blue (uniform color), full finish black plate, enamelling stock, metal shingle stock, show card stock, ceiling stock, milk can stock, galvanizing stock, nickel plating stock, H. R. & A. stock, O.P.C.R. & A. stock, special deep drawing stock.

RELATION OF PHYSIOLOGY TO VENTILATION

Continued from page 20

an impure quality of air, or any pathogenic bacteria, or any dust, or any particulate matter is absorbed into the blood, but that if its physical condition is not satisfactory, it does not produce the correct or desirable effects on the outside or skin surface of the body.

In general terms the theory is that the presence of persons' bodies for a long period in the same surroundings produces physical conditions in the air which are not satisfactory for dissipating the surplus heat from the body, and that it makes little difference whether these conditions have been produced by persons' bodies or their breath, or by any other means. It is the conditions themselves and not the character of their origin which is important.

This theory has perhaps been carried to extreme lengths. I am quite satisfied from experience that the adequate and suitable cooling of the human body and the suppression of smell or dust are not the only important functions of ventilation, but it must be clearly pointed out that this is essentially a physiological or hygienic matter on which the opinions of any engineer must of necessity be more or less amateur or common-sense in character. The close connection between heating and ventilation is clearly indicated in this theory. In order to understand the theory fully it is desirable to consider what the human body is, and what are the conditions necessary for its continued well-being.

A human being may be regarded as a mass of matter, not of constant shape, and never wholly at rest, provided with an internal heating apparatus. It is a fundamental condition for the well-being of this mass of matter that it shall be

kept very closely at a constant temperature throughout its mass (though not necessarily on its surface), even although the temperature and other conditions of the surroundings may vary very widely—from many degrees below the freezing point up to the body temperature, or even much higher.

Heat is supplied to the interior of the body by a transformation of the energy of the carbon and hydrogen taken in in the food. The value of the food as food can be exactly estimated on a calorimetric basis. Of course we all realize that energy in all its forms is fundamentally the same thing, that work and heat are interchangeable in the proportion of 778 foot-pounds of work to 1 British thermal unit of heat.

The food taken in is absorbed in a way which need not concern us, and distributed by the circulation of the blood all over the body. After absorption the liberation of the energy of the food, chiefly in the form of heat, takes place by oxidation in the interior of the body tissues. By some marvellous process the exact nature of which is unknown, the rate of oxidation is automatically regulated by the temperature of the environment and by the amount of muscular work done.

(To be continued)

SEWAGE DISPOSAL IN THE WEST

(Continued from page 19)

be taken in backfilling the excavation in order that the pipes and their surrounding bed be not disturbed.

Trees or bushes should not be grown over absorption beds as the roots may penetrate the openings between the tiles and obstruct the flow of sewage.

Depth of Tank and Absorption Field Below Ground

The clause in the provincial plumbing regulations which has hitherto required all basements to be drained has been amended with the issue of this bulletin and drainage of basements will in future be optional. And additional expense incurred by draining the basement is justified, however, by the sanitary advantages obtained and it is recommended that basement drainage be provided in all cases.

Where there is a good surface fall available the field tiles may, subject to the conditions noted below, be laid at the depth at which full advantage may be taken of the action of the soil bacteria, namely, 18 to 20 inches below the surface.

Rolling ground is, however, the exception rather than the rule in this province and in the average installation it will be found that the field tiles must of necessity be laid at least three or four feet below ground level.

The regulations which have hitherto governed the installation of septic tanks in this province required all absorption systems to be constructed at a depth which would prevent them freezing, or seven feet below the ground surface.

(To be continued)

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

SOME recent price increases contrast sharply with the declines that have been apparent in the trend of quotations on many plumbing and steam-fitting supplies. Other reductions, however, are also announced, but these are chiefly of a minor nature, and the basic products remain practically unchanged.

Solder prices are increased 2 cents per lb. on the different grades, and 2½ cents on wire solder. The primary lead markets are very firm. Ingot metals are developing a firmer tone, and some higher quotations are evident. The copper market is strong, but prices on sheet copper and tubing remain at previous levels.

Range boiler quotations are very irregular, with price-cutting and general unsettlement still in evidence. A new discount list, effective May 20, is announced on radiators, which gives approximately a 10 per cent. reduction. Enamelled ware

prices are unstable, with closet quotations also unsteady. In both cases jobbers are offering more attractive discounts to obtain business, but purchasing is reported light, and future conditions are pending upon an improved demand.

There has also been a slight reduction on the 28 gauge and 10 3-4 oz. galvanized sheets. Other minor changes include a small revision in malleable fittings; lower prices on some classes of valves and cocks, and a new discount sheet has been issued covering one line of taps and dies.

Compression goods, corrugated sheets, boiler tubes, bar iron and steel, wrought pipe and fittings, soil pipe and eavestrough, scrap materials and cotton waste are all maintained at previous price levels. A slightly better demand is manifest on lines in general, but marked building activity is still the tonic needed to restore normal conditions and all-around improvement in the trade.

MONTREAL MARKETS

MONTREAL, May 28.—Of interest to the plumbing trade are the reductions announced on range boilers and radiation. A new price list on range boilers shows a reduction from 10 to 27 per cent. on the different sizes. Both upright and wall radiators are now selling under increased discounts, they being raised 5 per cent. on both kinds in steam and hot water. Solders also feature the markets, but in the shape of an advance. Bar solders are increased 2 cents a pound, wire 2½ cents.

Minor changes include a revision on the Penberthy line of valves, cocks, etc., and Butterfield & Co. announce lower prices on many of their tools through issuing a new discount sheet to their catalogue.

Enamelled ware continues unsettled with a small demand being shown. Corrugated sheets, galvanized and black sheets, boiler tubes, wrought pipe and fittings, bar iron and steel, soil pipe and eavestrough are all unchanged. A slightly better demand is manifest on all lines in general but lack of the anticipated activity in building construction is still the obstacle in the way of marked improvement.

Penberthy Goods Revised

Montreal.

Lower quotations are given, through a revision, of the Penberthy line of valves, petcocks, ejectors, etc. Following are the discounts on some of the best sellers: Injectors, 50 off; ejectors, 60 off; petcocks, 33 1-3 off; regrounding globe and angle valves, 20 per cent. off list.

Taps and Dies Reduced

Montreal.

A new discount sheet has been issued for the catalogue of Butterfield & Co., makers of various kinds of tools, revising many lines to lower levels. Following are the new discounts on their best known products:

Reece's screw plates	35%
Ordinary machinists' hand taps, 1-16 to 15-64	65%
Do., ¼ to ¾	55%
Machine screw taps, No. 12 and smaller ..	65%
Do., No. 14 and larger	55%
Pipe taps, right hand, up to 1 inch	70%
Do., 1¼ to 2 inch	65%
Do., 2¼ to 3 inch	45%
Do., 3¼ to 4 inch	30%
Stove bolt taps, 3-16 inch	65%
Do., ¼ in. and larger	55%

Lead Firm; Solders Advance

Montreal.

In the lead product market this week bar solders of all grades have been advanced 2 cents, wire solders 2½ cents per pound.

This is the result of the continued firm tendency in the lead and zinc market, and with this continuing it would not be

surprising if other lines of lead products follow in line with higher prices ruling in the near future. On the primary market lead is again very firm, the easing at the close of last week being fully recovered. Zinc also continues with a fairly active demand. Added to these conditions a scarcity is becoming apparent in the above mentioned metals. Tin remains firm owing to a scarcity in English supplies, thus causing the manufactured lead products to have a very firm outlook. Following are quotations:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 29
Do., strictly, lb.	0 27
Do., commercial, lb.	0 24
Do., wiping, lb.	0 24¾
Do., wire, lb.	0 37½
Zinc, sheets, casks	0 13
Do., broken lots	0 13½

Small Sales in Corrugated

Montreal.

No further change has been made on corrugated sheets since the issuing of the new list two weeks ago. Even the reduction shown on all gauges has not stimulated trading to any extent. Dealers still report business very light and express themselves as feeling that little increased activity will be shown until building construction is greatly improved from what it is at present. Locally, the unsettled feeling that existed a few weeks ago still remains and even the lower prices have not had the effect that was hoped for among different job-

bers and wholesalers. Whether this will improve in the near future is doubtful, but present figures are considered as being well down to the bottom. Following are the quotations:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	15 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00

Less 7½%.
Lighter than 24 gauge and wider than 27 inches,
75c a square extra.

Compression Goods Hold

Montreal.

No further changes have been made in the quotations on the different lines of compression goods since the readjustment of two weeks ago. Dealers report a little more activity, but of the general sorting order, denoting that buying is confined to the sorting of the merchant's stock, notwithstanding the reduced prices. Following are the unchanged quotations:

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	29%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard ..	40%
Roundway stop and waste cocks, standard ..	34%
Brass steam cocks, standard	10%
Radiator valves, standard	23%
Do., removable disc	38%
Globe, angle and check valves, standard....	5%
Gate or straightway	Net
Jenkins globe	10%
Jenkins gate valves	10%

Enamelled Ware Unsettled

Montreal.

Enamelled ware continues to sell on an unsteady market, and while 10 per cent. off the following net prices seem to be the ruling quotations, jobbers are offering more attractive figures to obtain business. Asked if any improvement is likely to be shown in the near future, one local jobber stated that although there were no present signs of settlement, it was purely a war among the wholesalers, and an increased demand would assist more than any other factor. The trouble seems to be that purchasing is very light and little encouragement is offered with conditions as they now stand. Following were the former net prices with the extra 10 per cent. off:

Sinks, roll rim, 18x30 in.	18 40
Sinks, flat rim—	
16 x 24	\$6 00 \$5 92 \$5 84
18 x 30	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	41 12
Bath tubs, 5½ feet	45 68
Lavatories—	
17x19" Apron F139 or P4045.....	12 24
18x24" Apron F154 or P3845 or P3847..	18 82
18x21" Apron F169 or P4205	14 08
17x19" Roll Rim, F241 or P4345.....	10 08

Less 10%.

Closet Quotations Unsteady

Montreal.

The extra 10 per cent. is not offered on closets, but these are by no means on a steady price basis, and little uniformity in quotations is given among the different jobbing houses. As in the case of the other lines of enamel ware the

following are the former net prices, although generally an extra discount is offered. Building construction is still obstructive to the sale of these products and little improvement may be expected until more activity is shown in new building.

Closet, standard outfit	32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat ..	35 00
Do., add for reversible trap bowl.....	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe.....	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 60
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00

No Change in Tubes

Montreal.

No change is made in the quotations on boiler tubes and little improvement is shown in the demand. Jobbers are now satisfied that business in boiler tubes will be confined to repair work principally, which offers a movement on the best selling sizes only. Quotations are the following:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	25 00
1¼ inch	27 25	26 00
1½ inch	26 25	27 00
1¾ inch	29 75	27 00
2 inch	29 25	22 90
2¼ inch	33 00	26 00
2½ inch	44 75	28 00
3 inch	49 25	35 00
3½ inch	63 50	40 75
4 inch	85 00	51 75

Soil and Pipe Fittings Weak

Montreal.

Soil pipe continues to sell at the unchanged discounts given below, and as in the case of many other plumbers' supplies sales are small and for actual requirements only:

SOIL PIPE (medium and extra heavy)—
2, 3, 15%; 5 and 6-inch, 20% discount.
4-inch, 25% discount.
8 inch, add 20% to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Wrought Pipe Slow

Montreal.

Wrought pipe list No. 51 continues to be the selling price on wrought iron and steel piping. Business is quiet among the jobbing houses; merchants doubtless having their stocks now well sorted to meet the small demand that exists at present. Although new lists have been issued quite often since the beginning of the year, the future of piping, as regards even lower prices, seems doubtful. Following is list No. 51:

Price List No. 51.		April 25th, 1921.	
Standard Butt-weld Pipe S/C			
Per 100 feet.			
Size	Steel		Gen. Wrot. Iron
	Blk.	Galv.	Blk. Galv.
1½ in.	\$ 6 50	\$ 8 50	\$ \$
1¾ in.	4 71	6 81	5 91 8 01
2 in.	4 71	6 81	5 91 8 01
2½ in.	6 16	7 78	7 95 9 48
3 in.	7 42	9 49	9 95 12 02

1 in.	10 63	13 69	14 37	17 43
1¼ in.	14 38	18 52	19 44	23 58
1½ in.	17 19	22 14	23 24	28 19
2 in.	23 13	29 79	31 27	37 93
2½ in.	36 56	47 09	.....	.....
3 in.	47 81	61 58	.....	.....
3½ in.	63 02	79 58	.....	.....
4 in.	74 67	94 29	.....	.....

Standard Lapweld Pipe S/C

		Per 100 feet.			
		Steel		Gen. Wrot. Iron	
Size		Blk.	Galv.	Blk.	Galv.
2	in.	\$26 83	\$33 49	\$34 97	\$41 63
2½	in.	40 07	50 60	52 94	63 47
3	in.	52 40	66 17	69 23	83 00
3½	in.	63 94	80 50	84 18	100 74
4	in.	75 76	95 38	99 74	119 36
4½	in.	85 73	108 59	1 16	1 39
5	in.	99 90	126 54	1 35	1 62
6	in.	1 30	1 64	1 76	2 10
7	in.	1 75	2 23	2 32	2 75
8	in.	1 84	2 34	2 44	2 89
8	in.	2 12	2 69	2 81	3 33
9	in.	2 54	3 23	3 36	3 98
10L	in.	2 35	2 99	3 12	3 70
10	in.	3 03	3 85	4 02	4 76

Fair Demand for Fittings

Montreal.

No change of importance is reported on pipe fittings. The many lines are holding steady with the demand fair. Unchanged prices follow:

Cast iron fittings	20%
Bushings, cast	30%
Do., malleable	30%
Flanges	27%
Plugs	22½%
Flange Unions	20%
Maleable Unions	40%
Dart Unions, black	29%
Do., galvanized	8%
Nipples, ½ to 4" close and short.....	40%
Do., long	50%
Do., 4½ to 8" close and short.....	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	
Class B	0 20 0 28
Class C	0 13 0 20
Add 10%.	

Ferrous Scrap Lowered

Montreal.

Iron and steel scrap have been generally revised to lower levels, but conditions as a whole are unchanged, very little improvement being shown. Wrought pipe, pipe scrap, stove plate and machinery cast are now quoted \$1.50 per ton less, dealers being adverse to offering the higher prices. Non-ferrous metals, with the exception of lead, are very inactive. Lead has a little better demand and the price has again been raised one-half cent. Foreign markets are reported as stagnant, and until these improve little betterment is hoped for by the local dealers. Following are the nominal quotations:

Dealer's Buying Prices.	
Automobile tires	0 75
Yellow brass	0 05
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0 04½
Lead, tea	0 02
Light copper	0 07½
Heavy copper	0 10½
Wrought iron, R. Rd., No. 1 per gr. ton	10 50
Malleable scrap (ton)	10 50
Pipe scrap (ton)	7 00
Heavy melting steel	6 50
No. 2 busheling	4 00
Boiler plate	0 08
Boiler plate	0 10
No. 1 machinery cast	22 50

Range Boilers are Reduced

Montreal.

A new price list is now issued on range boilers, showing a general reduction.

The amount of the decrease varies from 10 to 27 per cent. on the different sizes and weights. One local manufacturer stated that the lower prices were beyond expectation and below what the actual value warranted, but owing to the recent unsettled market, and price cutting, the new list was adopted.

There is not yet time to determine whether the lower prices will stimulate business to any extent, but this seems doubtful, as dealers do not seem disposed to purchase in any quantities, but rather to confine buying to actual needs. The thirty-gallon boiler is practically the only size selling, and these are moving in small orders compared with other years. Reduced quotations follow:

RANGE BOILERS—	Standard	Ex. heavy
30 gallon	8 75	11 25
35 gallon	11 25	13 50
40 gallon	13 50	16 00
52 gallon	20 00	23 00
66 gallon	28 00	35 00
82 gallon	35 00	45 00
100 gallon	45 00	54 00
120 gallon	54 00	

Sheet Prices Unchanged

Montreal.

Business in sheets, both galvanized and black, is still limited, and only small orders are being shipped. Quotations are unchanged with the same range in prices given. While the tendency seemed toward lower prices a few weeks ago, buyers are now of the opinion that reduced prices would not help sales, and conditions on the foreign markets do not warrant lower levels at present.

The future of steel products, including sheets, is considered doubtful; but with the demand continuing light, little change may be looked for. Following are quotations:

PLATES—		
10 gauge	5 25	6 25
12 gauge	5 30	6 30
14 gauge	5 45	6 45
16 gauge	5 55	6 55

BLACK SHEETS—		
14 gauge	5 45	6 45
16 gauge	5 55	6 55
18-20 gauge	6 15	7 15
22-24 gauge	6 25	7 25
26 gauge	6 35	7 35
28 gauge	6 50	7 50
Sheets 36 in. wide, 10c per 100 lbs. extra.		

GALVANIZED SHEETS—		
U.S. Standard—		
10% oz.	8 75	9 75
28 gauge	8 25	9 25
26 gauge	8 00	9 00
22 and 24 gauge	7 85	8 85
20 gauge	7 65	8 65
18 gauge	7 65	8 65
16 gauge	7 50	8 50

English Standard—	Queen's Head	Fleur-de-lis
28 gauge	10 00	9 25
26 gauge	9 75	9 00
24 gauge	8 15	8 60
22 gauge	8 80	8 15
18 and 20 gauge	8 10	8 00

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Bar Demand Quiet

Montreal.

Prices on iron and steel bars are holding unchanged both on the local and foreign markets, although recent wage reductions were thought to be an indication of future lower prices.

Inactivity continues among the wholesalers, and while this is in evidence there seems smaller chances of lower levels,

as buyers are generally firm in their opinion that reduced prices would have no marked stimulating effect on sales. Unchanged quotations follow:

Common bar iron, 100 lbs.	3 70
Refined iron	5 20
Iron finish machinery steel	3 75
Mild steel	3 70
Single reeled machinery steel	5 75
Band steel	3 70
Spring steel	5 00
Sleighshoe steel	3 70
Tire steel	3 90
Toe calk steel	4 60
Harrow tooth steel	3 85
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel, per lb.	0 23

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Radiators Reduced

Montreal.

Lower prices are announced on radiators, effective May 20. Hot water radiators are now quoted less 53 per cent., steam less 54 per cent. Wall radiators are also lowered from 45 to 50 per cent. off list prices. Boilers remain unchanged. Following are now quotations:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 55% off list.

Square or sectional hot water or steam boilers, 15-in., 5%.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 5% off list.

Square or sectional steam boilers, 19-in. to 36-in., 5%. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10%.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Cotton Waste Unchanged

Montreal.

No change is made in cotton waste quotations and following are net prices:

WASTE	
Cream, Polishing	0 22
WHITE	
XXX	0 18½
XX	0 17½
X	0 16½
XLGR	0 16½
X Empire	0 15
X Press	0 13½
6X Special	0 12

COLORED	
Fancy	0 15
Lion	0 13½
Popular	0 10½
Keen	0 09

WOOL PACKING	
Arrow	0 32
Axle	0 27
Anvil	0 22

DOMINION WIPERS	
Washed and Sterilized.	
White Cotton	0 23
Colored Cotton	0 18
Above lines subject to trade discount for quantity.	

Eavestrough Improving

Montreal.

The seasonable demand for eavestrough, conductor pipe, etc., is now

active, and the fact that outside merchants held off in their buying until the season was at hand is making dealers all the busier at present. The reduction of two weeks ago holds, with following being the present quotations:

EAVETROUGH—

O.G. Square Bead—	Per 100 ft.	Per 100 ft.
8 in.	15 90	15 inch 28 80
10 in.	17 70	18 inch 36 80
12 in.	21 20	
O.G. Round, and Half Round—		
8 in.	16 90	15 inch 29 80
10 in.	18 70	18 inch 37 80
12 in.	22 20	

Discount 60% off list.

CONDUCTOR PIPE—	Per 100 Ft.
2 in.	18 40
3 in.	22 30
4 in.	29 60
5 in.	40 00
6 in.	49 00
Discount 60% off list.	

CONDUCTOR ELBOWS—	
2 inch, list	\$5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

Ingot Prices Firm

Montreal.

The recent fluctuations in ingot metals have resulted in slightly higher prices on some metals locally. Present indications are for a quiet market, but on the whole more or less steady. It is thought that the demand will have to increase before any marked changes will be noted.

TIN.—In spite of the light demand, tin holds fairly steady, with an advance of one-half cent made in local quotations this week, now being quoted at 41 cents.

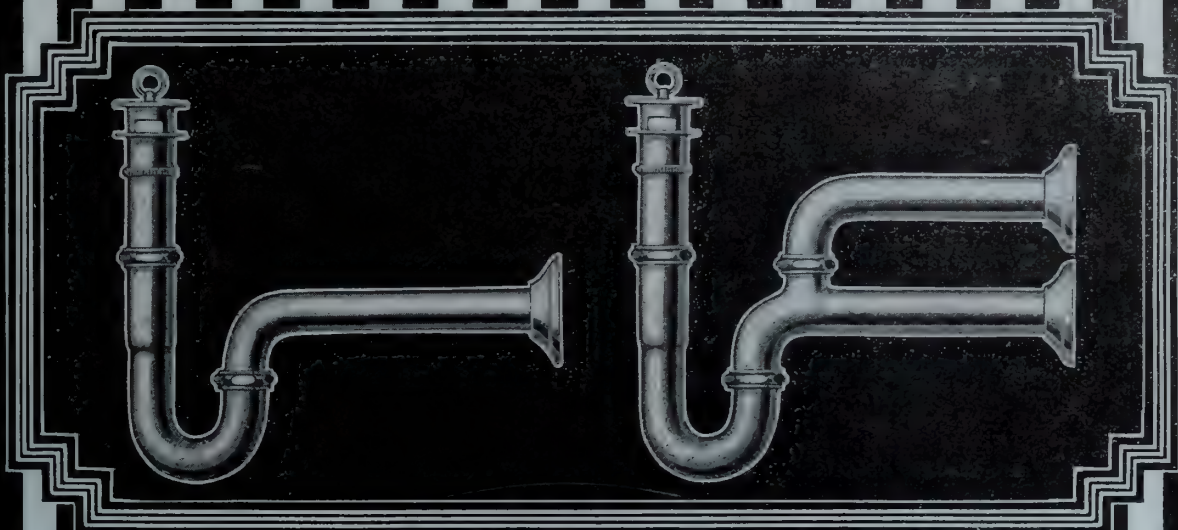
SPELTER.—Spelter continues easier in the United States but holds firm in London. If the London market advances much more, American spelter will be on an export basis, which will mean an advance on this side. Local price unchanged at 8½ cents.

COPPER.—This metal is quite strong, with considerable buying in New York for export account. Whether the strength will last or not is hard to determine, and a reduction would not be surprising. Local prices advance one-quarter cent, quoted at 18¼ for electro and 17¼ for casting.

LEAD.—Although on a quieter tone than last week, lead is now from steady to firm. This tendency is expected for some little time as the reaction of last week was soon recovered. Seven and one-half cents continues the ruling price.

ANTIMONY.—The market in the East on antimony has been weak; being disappointing as it has not responded to fluctuations as have the other metals. Local price, Chinese, 7½ cents; high-grade English, 8¼ cents.

ALUMINUM.—Aluminum continues dull on the market, with price unchanged at 34 cents.



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Mueller Metals Co., Port Huron, Mich., Makers of “Red Tip” Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

TORONTO, May 28.—In contrast to the general trend of reductions which has recently been prevalent in prices on numerous plumbing and steamfitting supplies is the increase announced in solder. The price of wire solder has advanced $2\frac{1}{2}$ cents per pound while the increase on the other grades is shown at 2 cents.

The copper market also registered a stronger tone, but local prices on sheet copper and tubing remain unchanged at present. White lead shows a firmer tendency and is reported heading towards an increase. Prices on linseed oil advanced another two cents per gallon. Current ingot metal prices also show activity with tin now 2 cents per pound higher and another small increase in lead. Copper has also developed a firm tone.

Copper Market Stronger

Toronto.

With the recent increase in price on the primary copper markets, a corresponding stiffening in sheet copper conditions is evident. Prices, however, are still maintained at previous levels by local dealers, although any marked demand would tend to promote higher quotations. Present prices follow:

BRASS—	
Sheets, base, per lb.	\$0 29
Rods, base, per pound	0 26
Tubing, base, per lb.	0 36
COPPER—	
Rods, base, per pound	0 34
Soft sheets, plain, 16-oz. and heavier, lb. 0	34
Do., plain tinned " " " "	0 40
Do., polished and tinned " " " "	0 45
Tubing	0 39

Solder Prices Advance

Toronto.

A firmer tone continues in lead and zinc products, and the outlook is reported as brighter. A fair quantity of small orders is being received, but no exceptional business is expected. Lead is quoted as very strong on the primary markets, and another advance in price developed. Increases in solder prices have resulted, the new quotation being 2 cents per pound higher than the previous level. Other quotations remain unchanged.

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to discount of 10%.	
Lead traps and bends	10%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 09½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 36½
Do., 40-60	0 28½
Do., 50-50	0 31
Do., strictly, lb.	0 26
Do., commercial, lb.	0 24
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 24
Zinc sheets, per lb.	0 16
Calking lead	0 08

Boiler Prices Unsettled

Toronto.

The range boiler situation appears to be temporarily unsettled, and local quotations are very indefinite. Some cutting was reported to have taken place last week, and due to this keen competition among dealers, boilers are said to have been quoted at much below the current list. Market values indicate that any reductions would bring the prices below cost. The present nominal list is given below. Some lower prices have prevailed in certain quarters, but were not definite nor sustained, and a new list is expected to be issued shortly.

RANGE BOILERS—		Standard	Ex. Heavy
30 gallon	12 50	15 00	
35 gallon	15 00	17 00	
40 gallon	17 00	19 00	
52 gallon	24 00	28 00	
66 gallon	32 00	38 00	
82 gallon	40 00	50 00	
100 gallon	50 00	60 00	
120 gallon	60 00	70 00	

Soil Pipe Remains Steady

Toronto.

No change has been announced in the discounts on soil pipe or fittings, but a slight improvement in demand has been noted in some quarters. Conditions, however, are reported as below normal for this season of the year, and the development of a firmer tone is hoped for. The ruling prices follow:

2 and 3 inch, 10%.	
4 inch, 20%.	
5 and 6 inch, 15%.	
8 inch, add 5 %.	
FITTINGS—	
2 to 6 inch fittings, 40%.	
8 inch fittings, plus 5%.	

Revision Probable in Closets

Toronto.

No change is shown in closet prices, and conditions are also reported to be practically unchanged. Very little new business is in evidence, and the demand continues light. Rumors of some future revision in prices are not yet definite and following are the general prices at present:

Closet, standard outfit	\$32 00
Do., with post hinge seat	33 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	35 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 80
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

Pipe Quotations Unchanged

Toronto.

Wrought iron and steel pipe are maintained at list No. 51, which recently came into effect. A sorting movement has been in progress and stocks are now said to be in good shape. Improvement in conditions, if any, has been very slight. Sales being irregular, and generally on a small scale.

Radiation Discounts Revised

Toronto.

Prices on radiators are now revised and

the new discounts quoted show approximately a 10 per cent. decrease on the standard radiator. On the 2, 3, 4 and 5 column sizes the discounts now are: Water, 53 per cent. off list, and steam, 54 per cent. off.

In the 1 column size, and hospital radiators of the 2, 3 and 4 column sizes, the discount remains unchanged, being: Water, list less 48 per cent., and steam, less 49 per cent. The discount on wall radiators is also changed from 45 per cent. to 50 per cent. off list. Boilers remain at previous quotations. The revised list is effective from May 20 and is as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5-column sizes, 53% for water and 54% for steam.

Discount on 1-column size, and 2, 3 and 4-column hospital sizes, 48% for water and 49% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Oil Prices Advance

Toronto.

Another increase is reported in the price of linseed oil, the new quotations being 87 cents for raw and 90 cents for boiled on 1 to 2 barrel lots. This is an advance of two cents over previous quotations, and uncertainty exists as to what range of prices will prevail here in the near future. Some further increase is looked for in some quarters, but while opinions on this are not general, the average tendency shows expected fluctuations.

Cotton Waste Unchanged

Toronto.

Prices on cotton waste remain unchanged. Some dealers report that owing to a slight increase in demand, market conditions now contain signs of future improvement.

Enamelled Ware Sales Light

Toronto.

Buying in enamelled ware continues to be light and a tendency to cut on some prices has been reported. Quotations generally are, however, adhering to the prices and discount shown below:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net \$16 25	
Do., 5½ ft., net	17 50
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847 ..	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	
16 x 24	1 only 2 only 3 only
18 x 30	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20/10% off these prices.	

White Lead Stronger

Toronto.

A very strong feeling is evident on the white lead market, and while quotations on white lead in oil remain unchanged at present, yet the lead situation is apparently heading towards an increase.

**MADE
IN CANADA**

MALLEABLE AND CAST IRON PIPE FITTINGS

**Annual Capacity
6000 Tons**

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

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St. John, N.B.—H. G. ROGERS, 147 Prince William St. Vancouver, B.C.—CYRIL AMES, Wilton Block
Montreal and Toronto—From Head Office, Guelph, Ont.

Mine production of lead is reported to be relatively small, and a strong summer demand has created a firm tone. The United States prices on white lead show an advance, but this has not yet affected local prices.

Elbow Sales Improve

Toronto.

There is a better movement of conductor elbows and sales are showing some improvement. Quotations remain unchanged and are as follows:

CONDUCTOR ELBOWS—

Plain round or round corrugated—

2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00
Discount 55%.	

No Change in Belting

Toronto.

Conditions show a very slight improvement on leather belting and laces, but the market is still below normal, and little immediate improvement can be expected. Dealers are still purchasing according to present requirements only. No changes in prices are anticipated until next fall, when some reductions or readjustment on a lower basis are looked for in some quarters. Future revisions are, however, not generally quoted, as the market in hides is uncertain.

Iron and Steel Bars Unsettled

Toronto.

Business in bar iron and steel has been far from large, but market reports indicate that prices are not yet being cut to any extent, either locally or in foreign markets. Except for current small orders, buyers are still adopting a waiting policy, and the demand is generally very slack.

IRON AND STEEL

Mild steel, 3-16 in. and lighter	\$ 4 50
Do., 1/4 in. and heavier	4 00
Bar iron, 3-16 in. and lighter	4 50
Do., 1/4 in. and heavier	3 75
Angle base	4 00
Horseshoe iron	4 10
Tire Steel	4 70 5 95
Band steel	4 50
Spring steel	10 75 12 75
Mining drill steel	23 00
Crucible cast sheet steel	30 00 35 00
Cast tool steel	20 00
Sleighshoe steel	4 10 4 50
Norway iron	15 00
Toe caulk iron	5 40 6 40
Hoop steel	6 00

Warm Air Furnaces

Toronto.

Dealers report that there has been a noticeable increase in the number of inquiries for warm air furnaces.

Corrugated Sheet Lower

Toronto.

Corrugated sheets remain at the lower quotations shown in the previous current quotations, and the market conditions also continue unchanged, with just a slight tendency towards seasonable improvement. Present price list follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	13 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 7 1/2%.	

Tube Prices Unchanged

Toronto.

Prices on boiler tubes remain unchanged this week; the new lower quo-

tations recently in effect on lapweld tubing still holding. A slow sorting movement is apparent on both seamless and lapweld. Following are the current quotations:

BOILER TUBES—

	Seamless	Lapweld
1 inch	26 00	.....
1 1/4 inch	27 25	.....
1 1/2 inch	26 25	.....
1 3/4 inch	29 75	25 00
2 inch	29 25	22 00
2 1/4 inch	33 00	25 00
2 1/2 inch	41 75	27 00
3 inch	49 25	35 00
3 1/2 inch	63 50	40 00
4 inch	85 00	50 25

Activity in Range Sales

Toronto.

Ranges and stoves of various kinds have recently increased in demand. Chief among these items reported to be selling well at this time are electric ranges, oil stoves, gas ranges, oil stove ovens and similar products.

Compression Prices Hold

Toronto.

The readjustment in quotations on standard compression work, announced in the last issue of Sanitary Engineer, still remains in effect. No direct change in market conditions is apparent and the following prevailing quotations are expected to hold:

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	29%
Do., Fuller	25%
Flatway stop and waste cocks, standard	40%
Roundaway stop and waste cocks, stand.	34%
Brass steam cocks, standard	10%
Globe, angle and check valves, standard	5%
J. M. T.	20%
J.M.T. C.	25%
J.M.T. Gate Valves	15%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Radiator valves, standard	23%
Do., removable discs	38%
Emco J. D. Valves	10%
Emco Check Valves	10%
Webber Gate Valves	15%
Basin Cocks—	
No. 1 and 1 Puller pattern	30%
Quick opening, No. 3633	37%

Eavestrough Prices Steady

Toronto.

The new discount announced in the last market report on conductor pipe and eavestrough still remains in effect. Except for the development of a more optimistic tone among dealers, there has been no apparent change. Industrial activity is looked for in some quarters with the advent of summer weather, and this is expected to create a slightly better demand for these products. The following are current prices:

TROUGH (Eave)			
O. G., Square Bead and half round. Size in girth:			
	Per 100 ft.		Per 100 ft.
8-in.....	\$15 90	15-in.....	\$23 80
10-in.....	17 70	18-in.....	36 50
12-in.....	21 20		
Less 60%.			
PIPE (Conductor)			
Plain, round or corrugated.			
	Per 100 ft. in 10-ft. lengths		
2 in., list			\$18 40
3 in., list			22 30
4 in., list			29 60
5 in., list			40 00
6 in., list			49 00
Less 60%.			

Malleable Fittings Revised

Toronto.

General conditions with regard to pipe fittings are reported as unchanged. Price quotations remain steady with the exception of malleable fittings, where a slight revision is shown in classes B

and C. Following are the current figures:

Cast iron fittings	20%
Plugs, cast	27 1/2%
Do., solid	10%
Do., countersunk	Net list
Bushings	30%
Unions, 1/4 in. to 2 in.	40%
Do., 1/8 in., 2 1/2 in. to 4 in.	35%
Dart-Unions, blk., 1/4 in. to 2 in.	29%
Do., 1/8 in., 2 1/2 in. to 4 in.	14%
Do., galvanized, add to black	30%
Wrought Nipples—	
Close and short, 4" and under	40%
Do., 4 1/2" and larger	30%
Long, 4" and under	50%
Do., 4 1/2" and larger	40%
Running thread, 4" and under	20%
Do., 4 1/2" and larger	.....
Wrought Couplings—	
Standard, 4" and under	20%
Do., 4 1/2" and larger	Net
MALLEABLE FITTINGS	
Class A	0 60 0 75
Class B	0 24 0 34
Class C	0 15 0 24

Galvanized Sheets Lower

Toronto.

Galvanized sheets show a lower revision of prices on the 10 1/4-ounce and the 28 gauge. This is taken in some quarters as an indication of the market tendency, but can also be attributed to the keen competition in sheets and plates among dealers. Stocks are reported to be ample for present demands, and little fresh business is evident, the majority of orders being small. Current quotations are as follows:

BLACK SHEETS

14 gauge	5 10	6 10
16 gauge	5 20	6 20
18-20 gauge	5 75	6 75
22-24 gauge	5 80	6 80
26 gauge	5 85	6 85
28 gauge	6 00	7 00

PLATES

10 gauge plate	5 00	6 00
12 gauge	5 05	6 05
14 gauge	5 10	6 10
16 gauge	5 20	6 20

GALVANIZED SHEETS

Premier and Apollo

10 1/4 oz.	8 40	9 40
U.S. 28 gauge	8 00	9 00
U.S. 26 gauge	7 75	8 75
22 and 24 gauge	7 35	8 75
18 and 20 gauge	7 60	8 60
16 gauge	7 45	8 45
12 and 14 gauge	7 40	8 40

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10 1/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Waste Prices Unchanged

Toronto.

Prices on scrap remain nominally unchanged. No large amount of trading has been in evidence, but dealers evidently expect business to gradually develop. White metals were slightly more active, but no change in prices resulted.

Non-ferrous wastes have been practically at a standstill, but quotations have remained firm in view of the stronger tone in virgin metals.

Ingot Tin Price Increases

Toronto.

Another advance of two cents per pound in the local price of tin, and a slight increase in the quotation on lead, are the chief features of the ingot metal markets. The price of copper is at present stationary, and it is reported that copper has many admirers, but few buyers are in evidence.

The Stability of Dunham Standards

THE experimenting which determined the principle of the Dunham Radiator Trap ended twenty years ago. Refinements in its appearance have, of course, been made since it was placed on the market, but improvements here and there have only accentuated the ideal principle on which it operates.

The basic principle of the Dunham Radiator Trap is one involving the laws of thermodynamics. The permanency of this principle makes unnecessary any juggling with the purely mechanical side of the trap.

Permanency in mechanical construction is vital also. The best proof we know of is that furnished by 18-year-old Dunham Traps operating to-day, with promise of keeping at it indefinitely. Much of that can be credited to the honest craftsmanship of eighteen years ago—and to this standard we adhere to-day, in what is said to be one of the finest industrial plants in Canada.

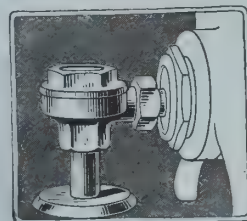
In using Dunham Radiator Traps and other Dunham products, you place your confidence in standards that have matured, that will never be sacrificed to commercial expedencies.

Full details of the Dunham Trap, and the other Dunham specialties, will be sent on request.

Dunham Specialties

Packless Radiator Valves
Radiator Traps
Drip Traps
Blast Traps
Air Line Valves
Vacuum Pump Governors
Reducing Pressure Valves
Oil Separators
Suction Strainers
Air Vents
Return Traps
Check Dampers
Damper Regulators
Condensation Pumps

Made in Canada



Dunham Radiator Trap

C. A. DUNHAM CO., Limited, Toronto, Ont.

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The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

There is no "come-back" from a



Pease "Economy" FURNACE

In every respect the "Economy" is a "quality furnace" and, when properly installed, nothing but the most complete satisfaction is secured by the user. The vertical shaker, convenient clean-out doors, steel plate dome and radiator, one-piece ashpit and the large size casings appeal to furnace users everywhere.

Our aim is an agent in every city, town or village in Canada. We are ready to appoint new agents where we are not already represented. Better write us to-day.

PEASE FOUNDRY COMPANY

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Jenkins Valves are big factors in good plumbing

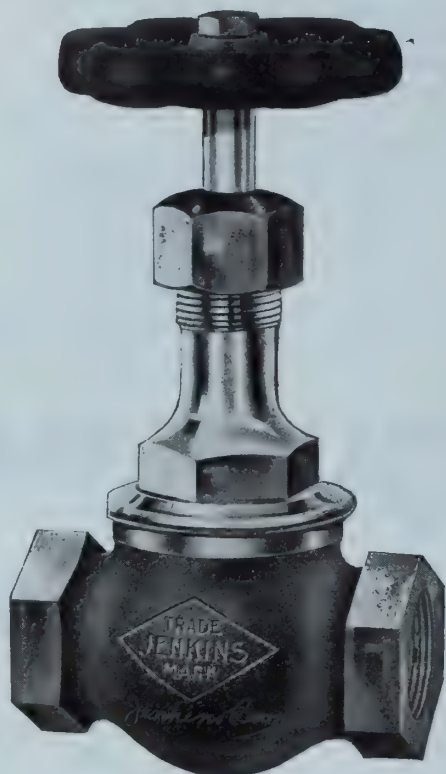


FIG. 106

Suitable for 250 lbs. Working Water Pressure
or 175 lbs. Working Steam Pressure

JENKINS VALVES are made of brass, iron or cast steel in types and sizes to meet all requirements of plumbing and heating service.

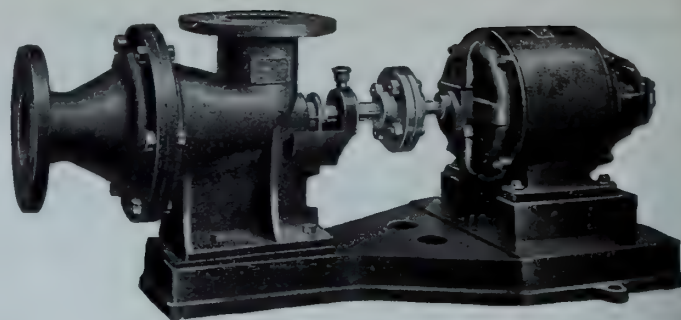
Now, as for some 57 years, "JENKINS" are specified as the valve equipment for good plumbing. They are dependable and trouble-free under every condition, because each valve in every type is made for maximum service and so tested before it leaves the factory.

Supply houses everywhere carry a complete Jenkins stock.

Plumbing and Heating contractors should write for Catalog No. 8 and descriptive literature on Jenkins Diamond-marked Valves for every plumbing and heating requirement.

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BRANCHES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD



Positive Circulators for Hot Water Heating

These pumps are especially designed for use on hot water heating systems and are built in four sizes to take care of radiation up to 15,000 feet.

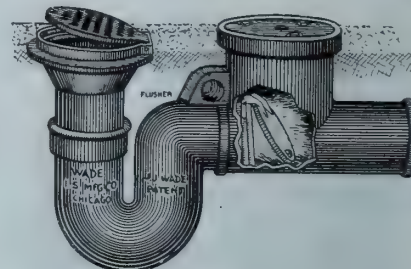
They save money in installation owing to the reduced radiation and pipe sizes required. They save money in maintenance of the system because every part of the system is kept at approximately the same temperature as the water in the boiler.

They allow greater flexibility in the placing of pipes and radiators to clear openings. Radiators may be placed above or below the return, at any distance from the boiler and the circulator will ensure circulation through them.

If you are contemplating the installation of a heating system let us show you how to get increased efficiency at a reduced cost.

**The Atlas Engineering
& Machine Co.**
23 River St., Toronto

Wade Drain Trap



B Fig. 17—Floor Drain Trap

Gives Satisfactory Service

The Wade accessible clean-out Floor Drain, Flushing Cesspool Back Water Gate Trap—valve combination—gives satisfactory service wherever installed.

Endorsed by sanitary engineers and specified by leading architects.

Simple, practical designs that are easily installed and dependable in operation.

"Wade" Sanitary Fittings satisfy customers.

Write for catalog "B"

Wade Iron Sanitary Mfg. Co.
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Manufacturers and Dealers in
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Floor Drains and All Descriptions of Iron
or Gravel and Grease Basins.

Mr. Dealer:—*INSTALL*

RELIABLE

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RANGE BOILERS

and keep your customers' good-will for all time.

Toronto Hardware Mfg. Co., Limited

Toronto, Ont.

Sales Built on Confidence

Morrison Gauges

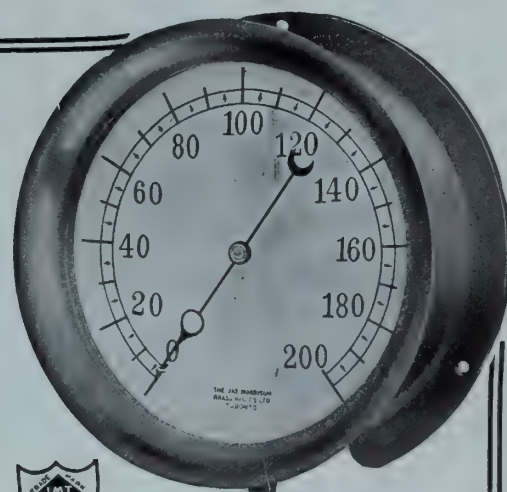
include gauges for every conceivable purpose—for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

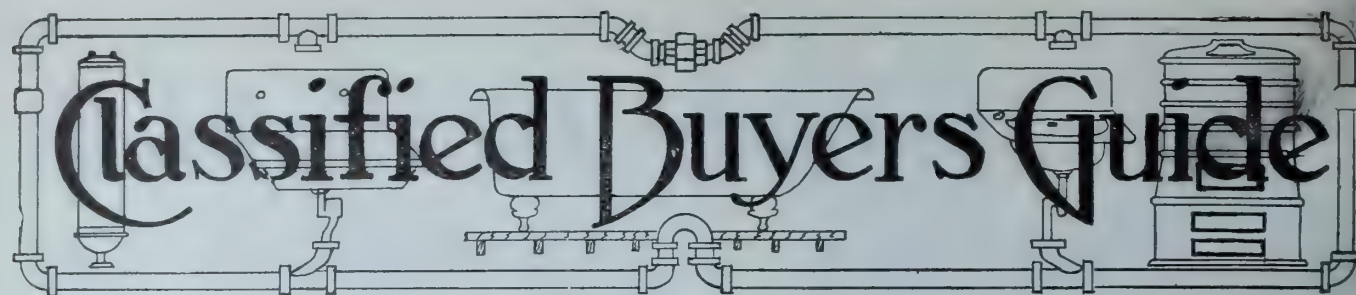
There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.

James Morrison Brass Mfg. Co., Ltd.

93-97 Adelaide Street West, Toronto



Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.

**AIR LINE SYSTEMS**

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AIR PRESSURE TANKS

The Canadian John Wood Mfg. Co., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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BATHROOM FITTINGS

Gendron Mfg. Co., Ltd., Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.
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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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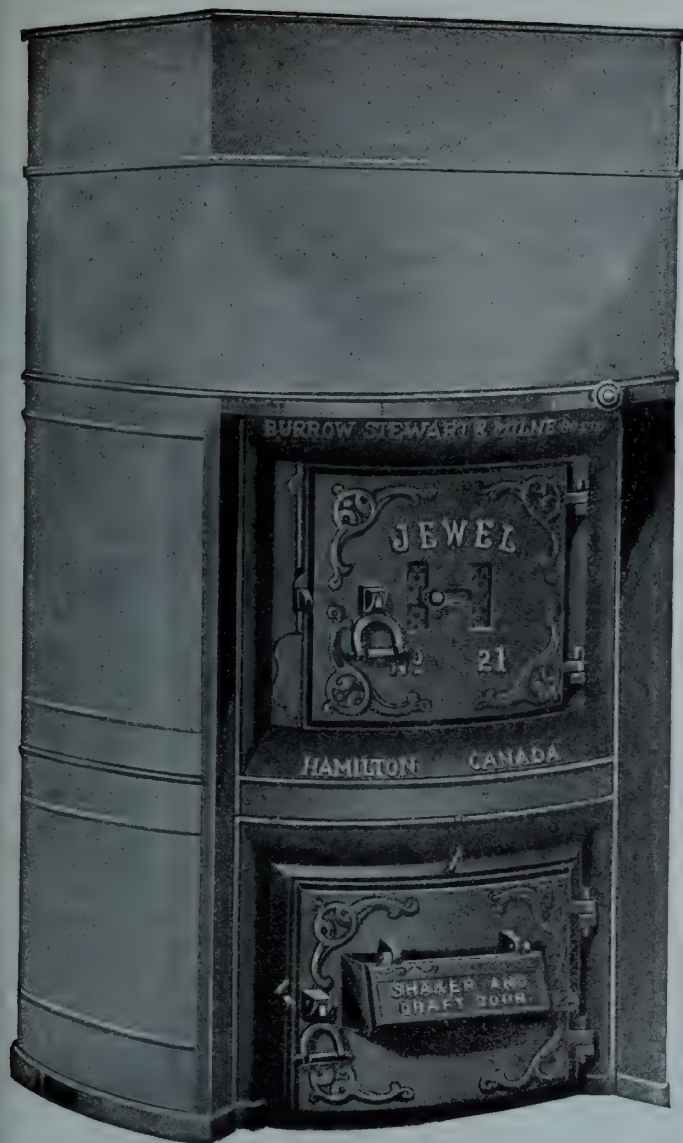
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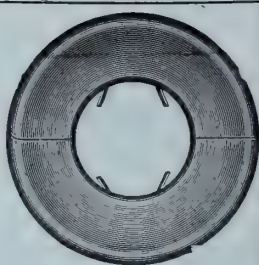
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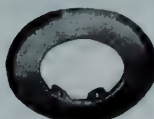
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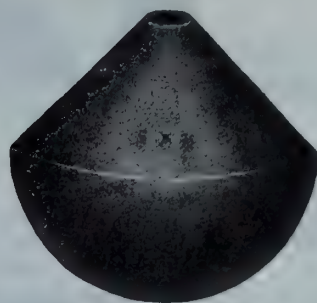
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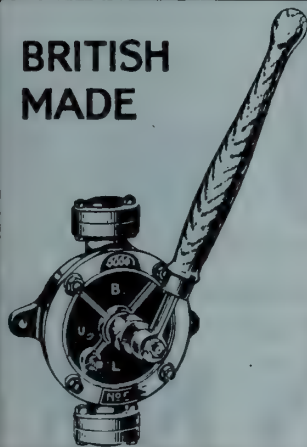
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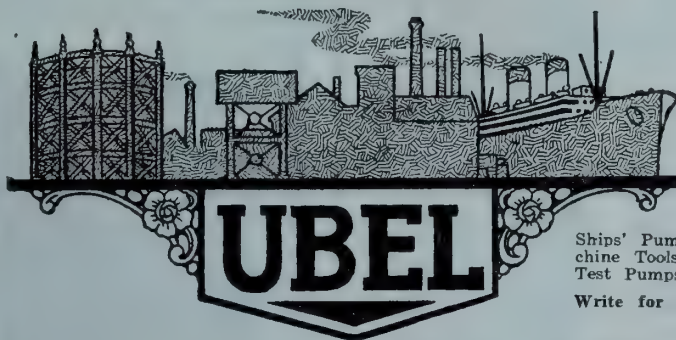
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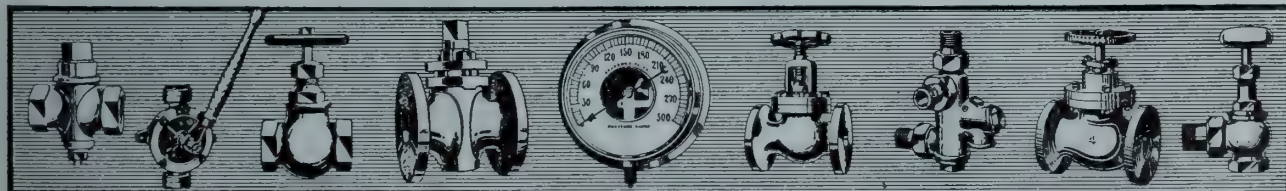


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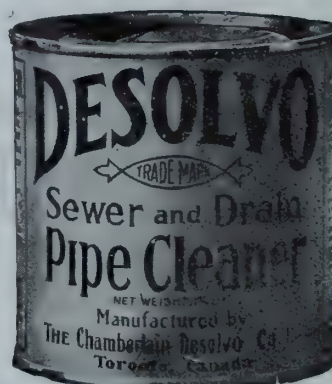
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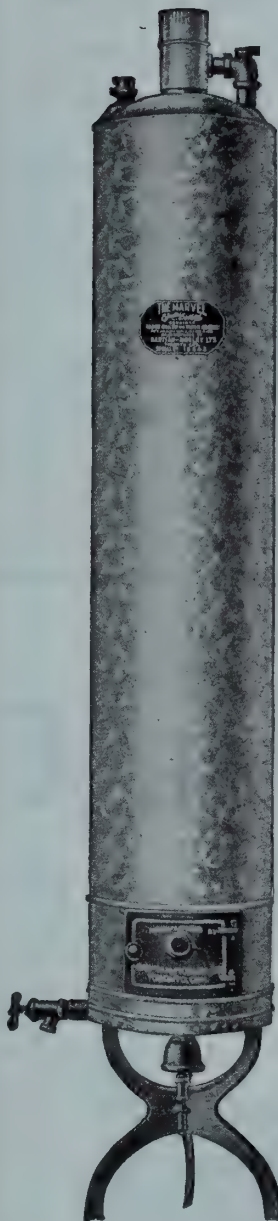
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INDEX TO ADVERTISERS

Allison, K. B.	8
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	Inside back cover
Atlas Engineering	38
Atlas Tank Works	44
Bastian Morley, Ltd.	45
Beaton & Caldwell	42
Burrow, Stewart & Milne Co.	41
Campbell & Co., P.	48
Can. Brass	2
Canadian John Wood Mfg. Co.	7
Canadian Veneering Co., Limited.	45
Canada Metal Co., Limited	11
Canadian Brass Co.	2
Canadian Tube & Steel Products, Ltd.	48
Chamberlain Desolvo Co.	44
Consumers Gas Co.	44
W. H. Cunningham & Hill.	43
Dennis Wire & Iron	7
Dominion Sheet Metal Corp., Ltd.	1
Dom. Welding	5
Dunham, C. A.	37
Empire Manufacturing Co.	Outside front cover
Fitting, Ltd.	48
Galt Brass Co.	Back cover
Gendron Mfg.	44
Hall, Zryd Foundry Co., Ltd.	3
Hause Mfg. Co., Charles F.	52
Hoyt Metal Company	44
International Malleable Iron Co.	35
Jardine & Co., A. B.	6
Jenkins Bros.	6
Katie Foundry Co.	48
Kerr Eng. Co., Ltd.	4
Marks & Co.	48
McIntyre & Taylor, Ltd.	45
Morrison Brass Mfg. Co., Ltd., Jas.	39
Montreal General Tool Co., Limited.	4
Mueller Mfg. Co., H.	33
Ontario Metal Products Co., Limited.	46
Pease Foundry	37
Port Hope Sanitary Mfg. Co.	24-25
Spencer Heater Co.	39
St. Louis Technical Institute	46
Standard Sanitary Mfg. Co.	12
Steel Trough Machine Co.	48
Toronto Hardware Co.	38
United Brassfounders & Engineers, Ltd. ..	43
Wade Iron & Sanitary Mfg. Co.	38
Wallaceburg Brass	9
Warden-King, Limited	8
Westco Pumps, Limited	47
Williams & Co., J. H.	42
Wolverine, Limited	45

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Sub-Divisions.

Rural Communities.

Wherever water supply systems are used for general pumping and fire protection.

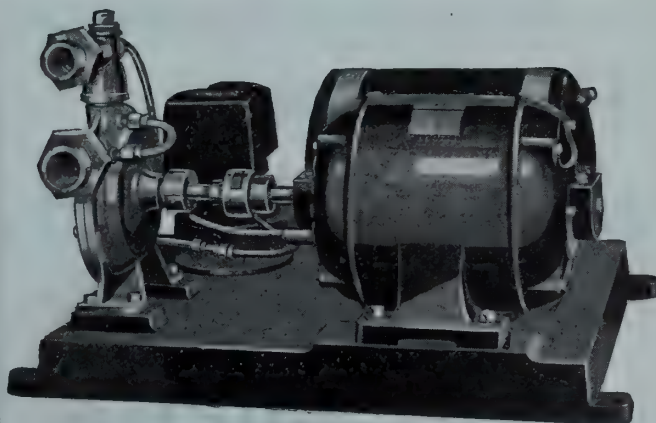
For Public and Private Institutions.

Orphanages, Dormitories, Fraternal Homes, Religious Institutions, Gymnasiums, Sanatoriums, Hospitals and all Public Institutions.

The Westco Tankless Water Systems now going on the market have new features that make them a very attractive line to handle.

Write us for full particulars of dealers' discounts, and co-operative plan.

Westco Pumps, Limited,
Queen and Abell Sts.,
TORONTO - ONT.





**No. 1
"TWEED"**
Sanitary Closet
with mahogany
finished seat
and lid with
nickel-plated
hinges.

The special "Tweed" chemical
used in connection with the
closet, destroys every trace of
odor. Easily installed as no
plumbing required.

We also make an attractive
line of "Tweed" Baths and
other home conveniences.

LOUIS A. PAYETTE

304 University St., Montreal
Quebec and Eastern Representative

Out-of-Town Business

Only those who have to live the
year around in a locality without
city conveniences realize the hard-
ships involved, and it is among
these that you can do a profitable
business with the

"TWEED"

SANITARY CLOSET

A city convenience at a fraction
of the cost—anybody can afford
one. Compactly packed for ship-
ment and easily handled.

Write for price lists and literature.

The STEEL TROUGH & MACHINE CO.
TWEED, ONT., CANADA Limited

Wrought Pipe



Suitable for the approaching period of building ac-
tivity, road construction, etc. This is a line of
great importance in making successful, profitable
contracts. Our C. T. Brand of Wrought Pipe has
been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure,
and branded with our trade-mark. We carry this line of reliable pipe
in sizes 1/4-in. to 4-in. Black or Galvanized. We also manufacture nip-
ples and couplings, black and galvanized, in all sizes.

Ask Your Jobber for C.T. Brand Wrought Pipe

Canadian Tube & Steel Products Ltd.

Operating Canadian Tube & Iron Co., Limited

Works at Lachine Canal, Montreal

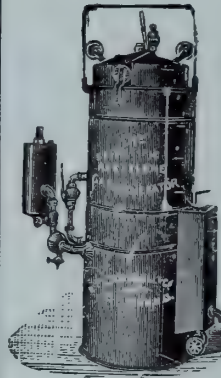
Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

PRIVATE LIGHTING SYSTEMS



Now is the time. You are the man—to
sell and install "Scientific" acetylene
lighting systems in your locality. Rural
Residences, Churches, Stores, Clubs and
Hotels are seeking modern lighting outfits
and you can reap a good profit in sup-
plying and fitting the gas piping and fix-
tures as well as the generator.

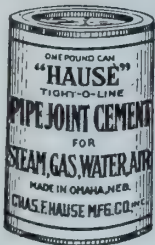
Hundreds in use in the best buildings
upwards 20 years. No delicate and ex-
pensive parts that require renewing as in
other systems, so that you can give a
better guarantee than any others.

Send for circular and go after this busi-
ness. We will assist you.

P. Campbell & Co.

Manufacturers

St. John, N.B.



Chas. F. Hause Mfg. Co., Ltd.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans
and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors.

Empire Manufacturing Co., Ltd., London and Toronto

The London Engine Supplies Co., London

**Superior
Plain**



**Closet
Bend**

The advantages of this fitting appeal to every thinking
engineer. It is absolutely tight, no more floor seepage, perma-
nent and at the same time easily removable for repair or re-
placement of bowl, widest range of adjustable flange and fits
any make of closet. Made in 18" lengths, plain or tapped on
both sides. Ask your jobber for the K.T. Closet Bend, Plain or
Tapped.



Fittings Limited



Trade Mark



Registered

Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa

We want to correspond with manu-
facturers in Canada who have a good
sales organization that would be in-
terested in an established vapor
vacuum heating system. Will de-
voted all our time in Canada if we can
make arrangements with right
parties. Address Box 28, Sanitary
Engineer.

Anthes Syphon

USERS SAY:

"It Works Perfectly"

Read the following letters from farmers who are using the Anthes Syphon for their Sewage Disposal Systems:

Wawanesa, Man.

I like the system first-class. It works so well that I have not seen into the tank for six years, so expect the syphon is working well. It is perfect and no well equipped farm should be without it.

(Signed) S. H. HENDERSON.

Balcarres, Sask.

The septic tank is working O.K. Too much praise cannot be given it if it always works like it has. And the comfort of it cannot be told in words.

(Signed) S. STEPHENS.

WHAT A WOMAN HAS TO SAY:

Holland, Man.

March 24th, 1921

Our Septic Tank and Sewage Disposal System installed last August has given entire satisfaction. All through the winter there has never been any indication of freezing, or any other objectionable feature.

The system has proved a very great comfort, which the whole family appreciates.

(Signed) M. E. (Mrs. W. J.) CHARTERS.

Balcarres, Sask.

April 5th, 1921

.....I had no trouble from freezing. I do not know of any improvements that could be made. Everything works fine.

(Signed) THOS. STEPHENS.

Lenore, Man.,

March 25th, 1921

With regard to septic tank, everything has worked O.K. since it was installed in October, 1918. It has never given trouble from frost and the syphon valve has worked perfectly. The whole system is entirely satisfactory.

(Signed) R. J. BRAY.

Regent, Man.,

March 25th, 1921

I must say that we are more than satisfied; the system works perfectly. I have been speaking well of it to anyone that has asked me. The system has been installed nineteen months.

(Signed) DOUGLAS POTTER.

Oak Lake, Man.,

March 30th, 1921

The installation has given perfect satisfaction. There are no objectionable features.

(Signed) V. M. DUNLIVIE.

There are many farmers who do business with you that still jog along without sanitary plumbing in their homes. Think of the excellent prospect for sales that this means to you, not only for the Anthes Syphon, but also the plumbing fittings that must go with it.

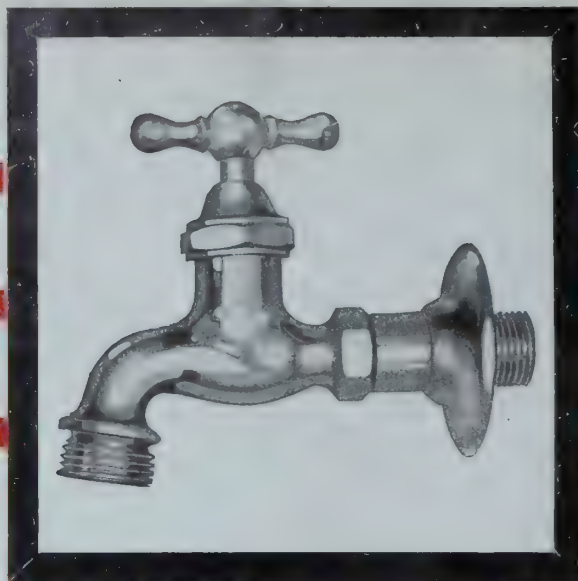
Write us for full details and plans showing how to install the Anthes System.

ANTHES FOUNDRY LIMITED

Manufacturers of Cast Iron Soil Pipe and Fittings

WINNIPEG

TORONTO



Better Brass Goods for Particular Jobs

PerfectO Brass Goods are not merely "good enough to get by"—they are perfect, and guaranteed perfect. Plumbers who have had experience with other kinds, turn to PerfectO Brass Goods for the final and lasting satisfaction of their customers.

The skill and care exercised in the making of PerfectO Brass Goods enable us to offer with perfect safety the most generous guarantee given the plumbing trade—the PerfectO "Two-to-One" Guarantee, which replaces every defective article with *two* perfect ones.

That is why you can be sure that PerfectO Brass Goods will satisfy—even in the most particular jobs.

GALT BRASS COMPANY, LIMITED

GALT - CANADA

Makers of the famous VITRO Tanks.

PERFECTO
REGISTERED TRADE-MARK

BRASS GOODS

Sanitary Engineer

Plumber and Steamfitter of Canada

CONVENTION NUMBER

Vol. XV.

PUBLICATION OFFICE, TORONTO, JUNE 15, 1921

No. 12



THE

“Two in One Fitting”

The “Emco” a 332 Stop and Waste Cock has met with universal approval and is proving one of our best sellers.

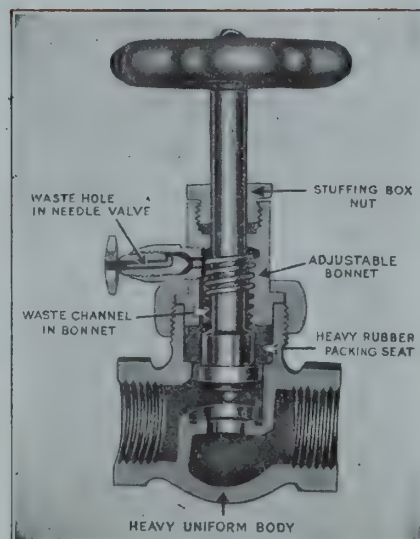
It possesses five points of superiority as will be readily seen by referring to the diagram.

Note the adjustable bonnet which allows the needle waste valve to be placed in proper position for catching waste water.

Also the needle valve which shuts off independently thus preventing a rush of water out the waste tube when turning water off and on.

We test all our products thoroughly before shipment.

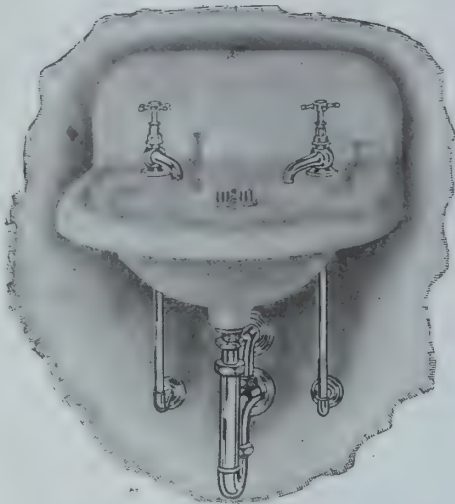
“If it’s an Empire Product you know it’s right.”



“EMCO” A 332 Stop and Waste Cock

EMPIRE BRASS MANUFACTURING CO. LIMITED

LONDON AND TORONTO - CANADA



One Piece Porcelain Enamel Lavatory



"Beaver" Porcelain Enamelled Bath, with 1½ inch Roll Rim, for Fuller Double Bath Cock, connected Waste and Overflow. Painted exterior.

Dimensions—Width over Rim, 25½ inches; Inside Width, 22 inches; Overflow Hole, 2½ inches; Height to Top of Rim 21¾ inches; Inside Depth, 15½ inches; Supplies, 1¼ inches; Centre to Centre of Supplies, 3⅝ inches.

Beaver Brand

Porcelain Enamelled Ware

The "Beaver" Porcelain Enamelled, One-Piece Lavatory is illustrated above and to the left. It has D-shaped Basin, Patent Overflow and Shell Soap Dish, on concealed brackets. Complete with N.P. Overflow, Strainer, Chain Stay, Plug and Stopper.

Dimensions—Size of Lavatory 17 x 19 inches; Basin, 10 x 14 inches; Length of Back, 19 inches; Height of Back, 7 inches.

Roughing in Measurements—Centre to Centre of supplies 10 inches; Centre of Outlet to Wall, 7½ inches; Centre of Supplies to Wall, 3 inches.

"Beaver" Porcelain Enamelled 2-Section Laundry Tub with Roll Rim, cast in one piece, with separate Enamelled Recessed Back, on painted Iron Legs. Complete with Wringer Holder, N.P. Scap Dish, Plugs and Stoppers, Painted exterior.

Dimensions—Length over all, 49½ inches; Height from Floor to Top of Tub, 31 inches; Height from Floor to Top of Back, 43 inches; Front to Back Outside, 25½ inches; Front to Back Inside, 21 inches; Depth Inside, 14½ inches.

Porcelain Enamel 2-Section Laundry Tubs

Roughing in Measurements—Centre to Centre of Supplies 10 inches; Centre to Centre of Outlets, 8 inches; Centre of Outlet to Wall 6¼ inches; Centre of Outlet to End 21 inches; Height from Floor to Centre of Supplies, 37 inches.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N. S.

AGENTS

Ontario:

Monarch Brass Mfg. Co.
71 Brown St. Toronto

Manitoba & Northwest

E. B. Plewes, 120 Lombard St. Winnipeg



"Shamrock" Porcelain Enamelled Bath

TINKER TOM'S TALKS

No. 315

GALVANIZED SECONDS

You may be able to do two things by using our seconds—

1st—Get your average cost down.

2nd—Land those “cheap jobs.”

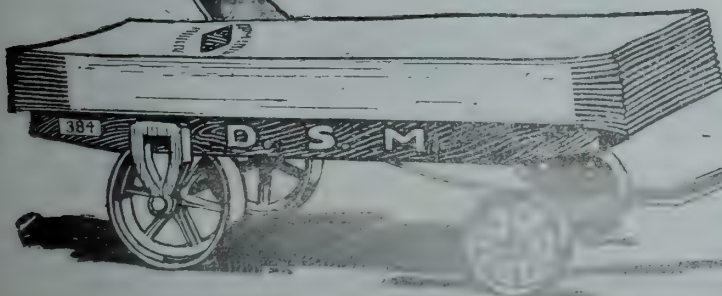
These Galvanized Seconds are pretty good sheets, too.

They have stains, metal marks, or are shop worn and are about equal to what English Mills call “Corrugating quality.”

The price is away down!

Ask your jobber - he can quote you, or if not, ask us.

TINKER TOM.



Quality

is an essential in the upbuilding of any business with permanence. Quality is one of the three legs of the Tripod of Business. This Tripod is as necessary to the stable support of business as is the Famous Tripod of Life—the heart, lungs and brain—to human existence.

Efficiency

represents the second leg of the business tripod. Without efficiency there can be no success, because efficiency signifies a satisfactory relation between the result obtained and the effort invested. We burn so much coal to obtain a certain horsepower in steam. We invest a given sum of money in business; if the business is efficient it produces at satisfactory return.

Service

is the positive complement of Quality and Efficiency, without which they could no more stand alone than could a three-legged stool with one leg lacking. The amount of our service to society at large is practically the measure of our receipts from the world—especially in business.

**Canadian Brass Company
Limited**

Galt - Toronto

File This Away for
Future Reference



Pease

Get Acquainted With the

FURNACE

Made in Canada Pipeless

No.	Type	Capacity (Cubic Feet)	Size of Duplex Grating		
			Out-side	Warm Air	Collar
704	Economy	10,000	30 x 30		22"
708	"	14,000	36 x 36		28"
710	"	19,000	36 x 36		28"
714	"	28,000	40 x 40		30"
716	"	45,000	45 x 45		36"
718	"	70,000	45 x 45		36"
720	"	80,000	45 x 45		36"
14-28	Brampton	7,000	22 x 21		16"
18-34	"	10,000	30 x 30		22"
20-37	"	14,000	30 x 30		22"
22-40	"	18,000	36 x 36		28"

Write to-day for latest prices.

Pease Foundry Company
Toronto Limited Ontario

Pease Western Foundry
Winnipeg Limited Manitoba

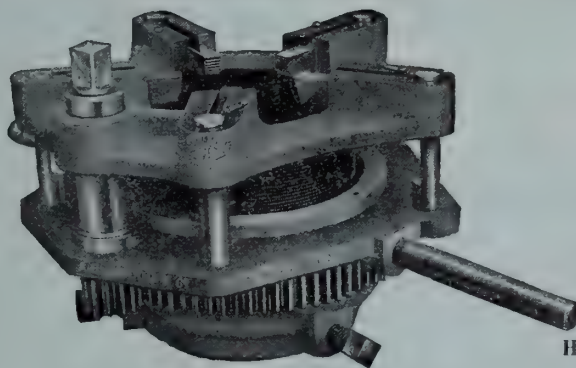
Jardine

Pipe Threading Tools

Toronto Agent

W. H. CUNNINGHAM & HILL, Ltd.

269 Richmond St. W. Toronto



"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

Toledo

Pipe Threading Tools

A. B. JARDINE & CO.
Limited

HESPELER

ONTARIO

These smooth-working tools give the maximum of satisfaction in use. The dies open out as the tool advances on the thread so as to make the proper taper. This prevents friction on the pipe and leaves every ounce of power available for making the cut. The dies only cut with the mouth of the cutter.

TOLEDO

Pipe Threading tools are beautifully designed with no complicated parts to get out of order. Toledo Tools do their work easily, rapidly and accurately. The A. B. Jardine Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

SEND THE COUPON TODAY

A. B. Jardine & Co., Limited, Hespeler, Ontario

COUPON

Name

Sanitary Engineer



Kerr Valves

**Give
Character
to Work**



They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them. Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing-box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

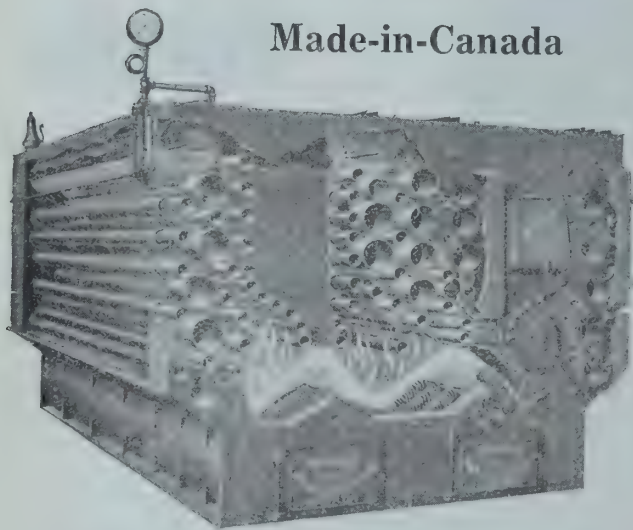
The Kerr Engine Co., Limited

Valve Manufacturers

Walkerville, Canada

EFFICIENCY FACTS versus BIASED OPINION

Made-in-Canada



SPENCER WATER-TUBE STEAM BOILER
Capacities 1,000 to 10,000 sq. ft.

MODERN boiler construction versus antiquated types, IS positively demonstrated in the construction and operation of the SPENCER Self-feeding Boiler.

It is the only type of boiler on the market that will successfully burn all of the various sizes and grades of fuel in a positively smokeless manner, with minimum attention and the greatest economy.

Every owner of a Spencer Boiler is privileged to purchase the lowest priced fuel in his particular district. These facts were conclusively proven during the memorable months in which the fuel rationing ordinance was in vogue, especially in Eastern Canada.

REMEMBER, the name of the Spencer Self-feeding Boiler stands for the best heating service known at this age, either for Hot Water or Steam in any type of building.

A few installations will drive home to you these **EFFICIENCY** facts.

Let Us Help You

SPENCER HEATING COMPANY OF CANADA, Limited

71 St. James Street
Toronto

68 Adelaide Street East
TORONTO

185 Portage Ave. E.
Winnipeg, Man.

PLANT - PENETANG, ONT.



Fortunes that are made and lost

OIL! Men grow rich in an hour. Stocks rise and fall like meteors. A mighty industry yet in the making. Giant pumps that pull from the very bowels of the earth the juice that drives the tractor or lights the city, or lubricates its mill-wheels, or heats a thousand homes.

To most men, that's the oil country. But to you, this scene has still another meaning. Look past the romance of it all and see the thousands and thousands of miles of just plain pipe!

Think of the elbows, joints, unions, all worked into a compact, serviceable system ready for any strain put upon it.

That system made possible the modern oil-well, a thing for the plumbing and steam-fitting trade to be proud of. The tools that cut those threads

are not the old fashioned, experiments of a decade ago but the same quick-acting sure-working servants that you find in any good workman's kit today.

GTD has built a line of pipe tools that are earning the praises of thousands of users.

The GTD Receding Pipe Threader will make it possible to thread pipe three times as fast—the "Trio" Die Stock will net you in dollars, twice as much work as you have been getting, and the GTD Pipe Wrench will give you longer service and better wear than any tool you ever held in your hand. These are not extravagant claims—but merely plain statements of the facts which we believe every man on a big plumbing job today, ought to know and make use of.

GTD
Corp.
of Canada
Limited
Galt, Ont.

Send your circulars describing the GTD Receder and other tools. Also put our firm on your mailing list to receive information about these tools whenever issued.

Successors to:
WELLS BROS. CO. of CANADA, LIMITED
Galt, Ontario

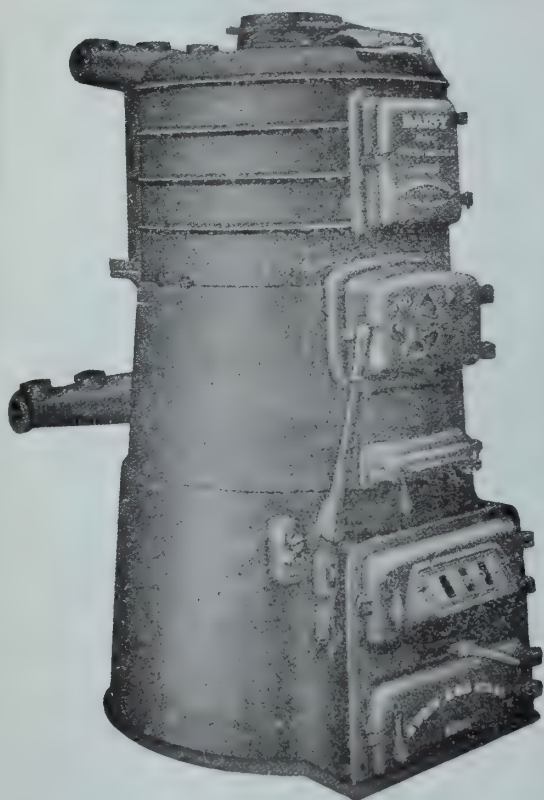
Name.....
Firm.....
Address.....

S.E. 405

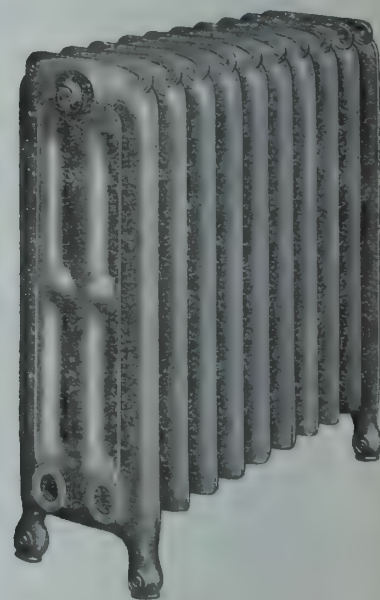
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WARDEN KING LIMITED
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MANUFACTURERS OF THE
DAISY BOILERS
 AND **VIKING RADIATORS**



Home of the
Daisy Furnace
Viking Boilers
Radiators
Cast Iron
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Over Sixty Thousand Daisy Hot Water Boilers Now in Use

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*Will You Pay 7 cents a Day to be
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Allpriser

Will keep your cost and selling prices straight for you and your employees. Allpriser is in touch with all the markets, constantly, with a thoroughness you haven't time for.

It is easy to make mistakes if you work blindly along without Allpriser's help.

Allpriser Service consists of a flexible, leather bound book 7in. x 9in. of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

It Costs Only a Stamp to Inquire To-day!

Kenneth B. Allison

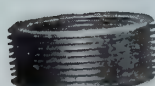
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Toronto



CRANE

Heating and Plumbing Equipment



represent a product of superior quality in sizes and designs for every purpose, weight and thickness for every pressure, and eight centers of distribution throughout the country which facilitate the selection of reliable material for the small or large building with equal assurance of permanent satisfaction.



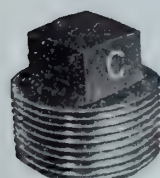
*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe,
Plumbing and Heating Supplies.*



CRANE

LIMITED

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1280 ST PATRICK STREET
MONTREAL



24

Gurney

From coast to coast thousands of homes are using Gurney Boilers.

You can always be sure of receiving praise for installation from your customers when you put in a "Gurney"—up-to-date in style and efficient in every way.

The way to establish a profitable business is by giving Entire Satisfaction to your customers.

Start TO-DAY and handle Gurney Boilers and Heaters for profitable and permanent business.



The Gurney Foundry

Company, Limited

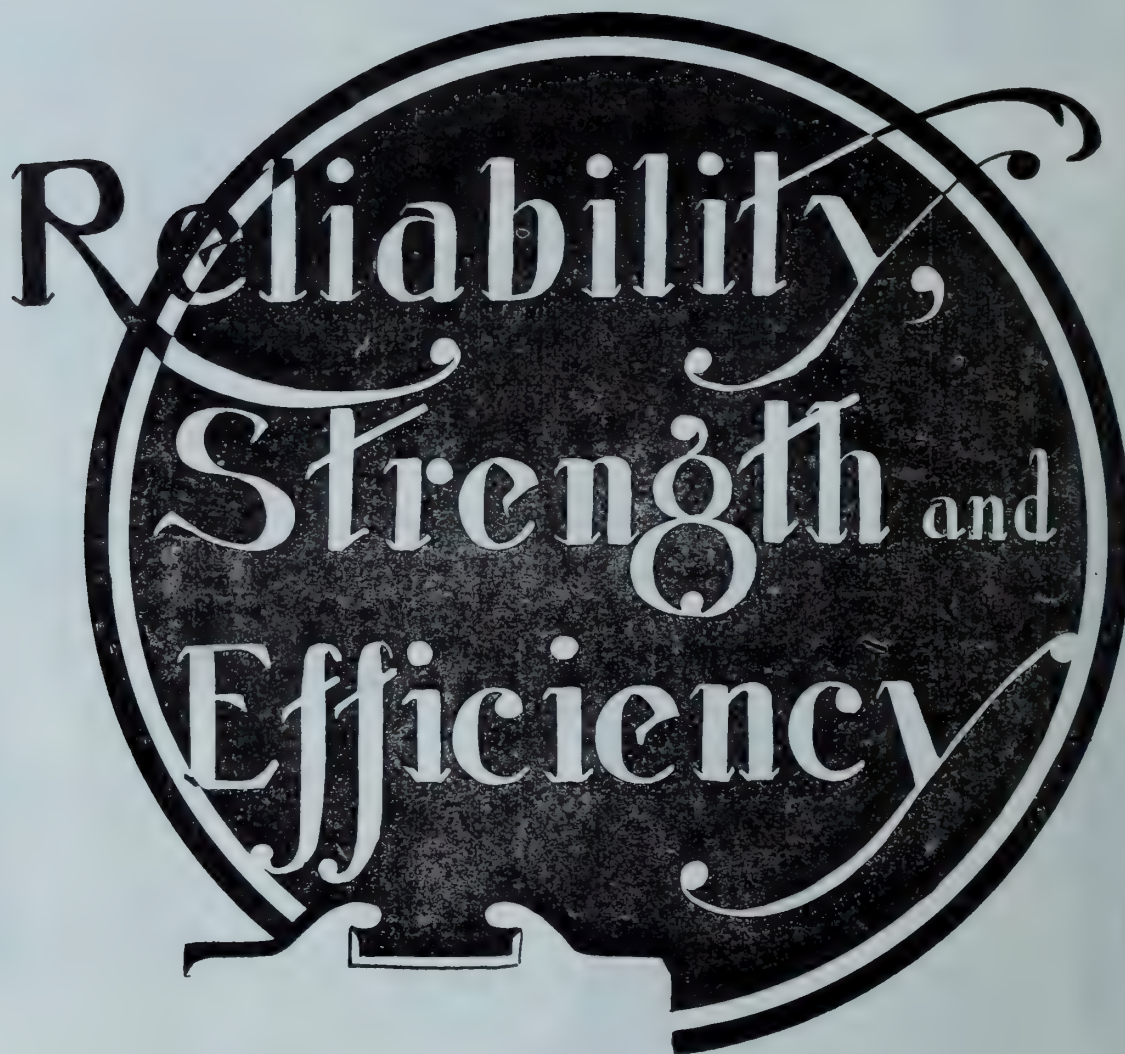
TORONTO

CANADA

Montreal

Winnipeg

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Reliability, Strength and Efficiency

These cardinal factors of success are all present in the Electric Weld Range Boiler. Reliability, because it has been made by the latest and most efficient method of modern science — the Electric Weld Principle. Strength, because in the Electric Weld the seam practically ceases to exist; there is a solid union of metal. Efficiency, because with these advantages, the user is assured of a boiler fully engaged in giving useful service.

THE CANADIAN JOHN WOOD MFG. CO., Limited

Electric Weld

Modern, Efficient Scientific RANGE BOILERS

Standard Size for New Work
or Replacement

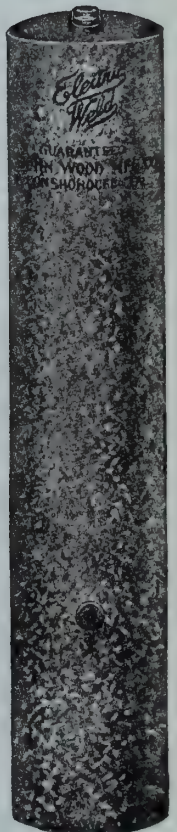
Tested and Proven in Service

*Complete strength in
the Electric Weld*

*No holes are punched or
drilled to weaken shell*

The Electric Weld Range Boiler is all boiler—rivets, solder, laps, and other unnecessary materials, are not needed to “bolster up” the Electric Weld Range Boiler.

No holes are punched, or drilled, to weaken the shell. In fact, in the Electric Weld, the seam practically ceases to be a seam; it is a solid union of metal.



Grand Trunk Railway and Hillingdon Ave., TORONTO, ONT.

Plumbing Specialties Worth While

Kerosene Water Heaters



This "Hotstream" Kerosene water heater works just like a gas heater, the burner generates its own gas—throws a clean powerful flame. Heats water for a bath in a very few minutes. Easy to install.

There are hundreds of prospective buyers in localities where there is no gas. Why not get after this profitable business. If your jobber cannot supply you we have these heaters in stock. Trade price... ..\$25.10

"B. & C." Floor & Ceiling Plates



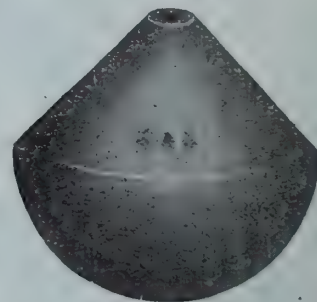
No. 17



No. 15

These splendid plates are specially designed for Canadian Trade. They are made of best quality steel thoroughly copper-plated and nickle-plated. Suitable for twin connection or one pipe work. No. 15 is the split pattern can be put on after all the painting and other work is finished. No. 17 is the solid pattern and of course lower in price. Insist on the genuine Beaton and Corbin plates. We carry full stocks 1/4 to 4".

Cone Top Tank Bulbs



Made from best quality rubber tops heavily re-inforced, bottoms soft and pliable. Our bulbs are second to none in quality and our prices are right. Send us a trial order.

W. H. Cunningham and Hill, Limited

Formerly W. H. Cunningham and Co.

269 West Richmond St.

Toronto, Ontario

UBEL

STEAM AND WATER FITTINGS

Semi-Rotary Pumps

Embodying every improvement, every detail that is found to give the best possible results in long, reliable service; that, and the renowned UBEL quality, are the reasons for the continuous success of UBEL SEMI-ROTARY PUMPS.

Double and Quadruple Acting Semi-Rotary Pumps for Domestic and Trade purposes of every description. Contractors' Pumps, Ships' Pumps, Rotary Suds Pumps for Machine Tools, Plumbers' Force Pumps, Boiler Test Pumps, etc.

Write for Catalogue Section P. Free upon application.

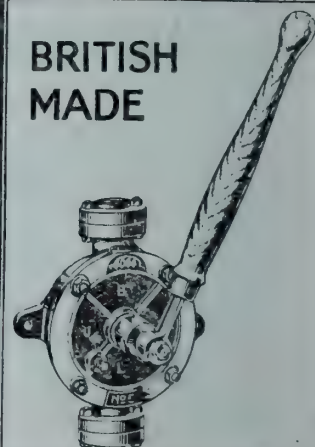
United Brassfounders and Engineers Limited

FIVE WORKS
HEAD OFFICE
EMPRESS
FOUNDRY

UBEL

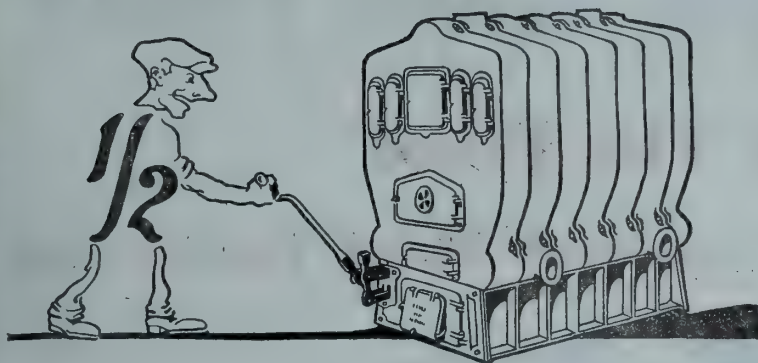
3000 WORKERS
CORNBROOK
MANCHESTER
ENGLAND

BRITISH
MADE



For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. CUNNINGHAM & HILL
Limited
269 West Richmond Street
Toronto
(Formerly W. H. Cunningham & Co.)



The Things Most Folks Know Are The Things That Most Folks Don't Know

By Booster Biny

Would you believe it, our square boiler grate have been shaking half at a time ever since Carlo was a pup.

In spite of which, one day before the way I said to the Big Boss, "let's put an ad. in the trade papers about our grates shaking half at a time, and so shaking half again as easy.

Let's tell them how they can run half the boiler or all of it just as the weather requires.

Let's tell them it's like having two boilers for the price of one.

A little boiler, always right there inside the big one.

"All nonsense," says the Boss, "everybody knows that."

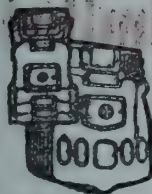
However, it let me carry out my hunch. And will you believe it, we got well nigh a bushel basket of inquiries, about

our "two-in-one-boiler" as a lot of them called it.

Why—man dear, fellows like Harry Biddle and Charlie Long and Will Pender wrote in wanting to know particulars.

All of which reminded me of the chap with a wheel-barrow, who just to be smart, I asked if he could run it backward. Replied he "didn't know, as so far he was always going the other way."

Which furthermore, only goes to prove that: the things most folks know are the things that most folks don't know. Next time am going to tell you about something that's for sale, that has 2 stories and a basement.



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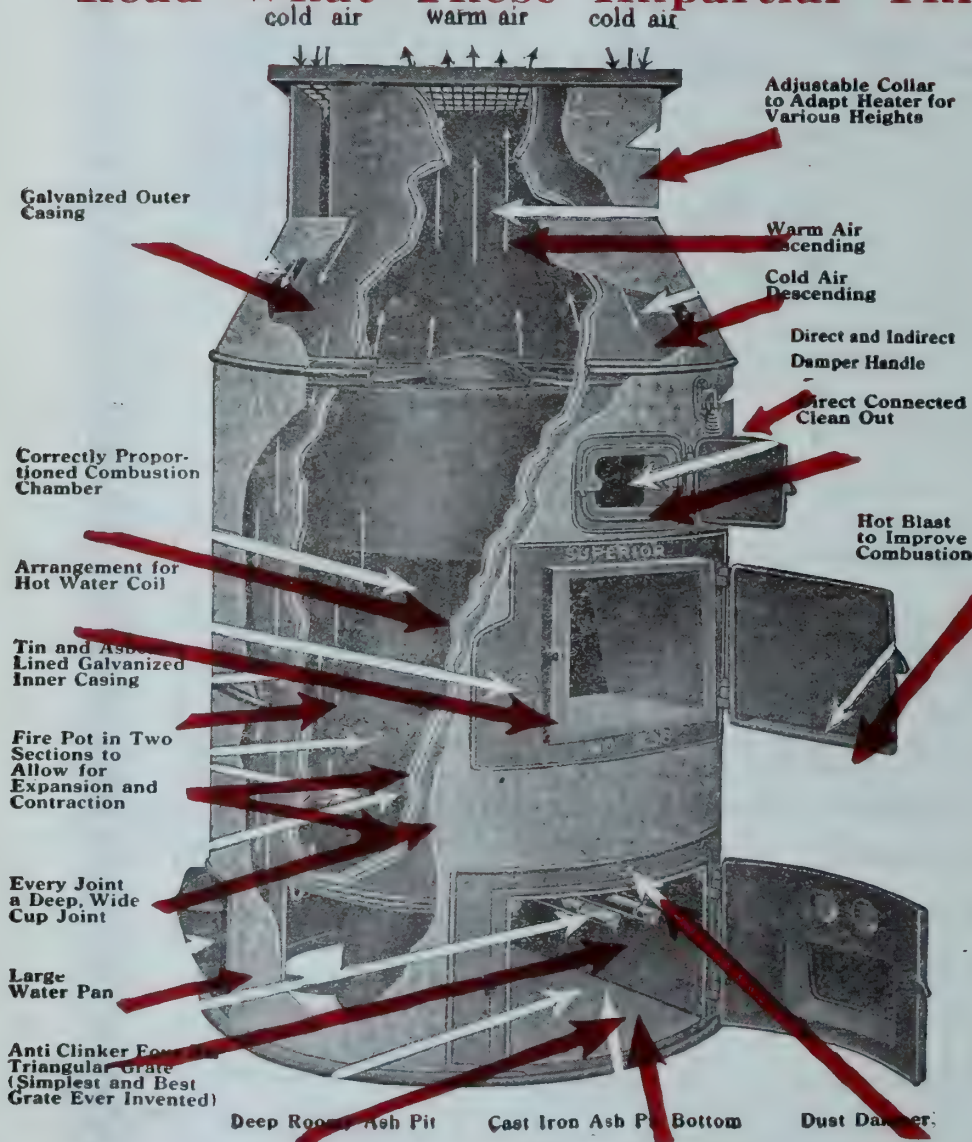
[St. Catharines, Ontario



The Pilot Superior Pipeless Furnace

And The Proof

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The Hall Zryd Foundry Co. Ltd.,
Hespeler, Ont.

Dear Sirs:—

It gives me much pleasure to recommend the Pilot Superior Pipeless Furnace No. 840, installed by Mr. J. C. Tweddle of Fergus.

We had the furnace in our 8 roomed house all last winter and we never had any heating apparatus that gave us the same satisfaction on the small amount of fuel as this furnace.

We would recommend the Pilot Superior Pipeless Furnace as the one and only furnace to give abundance of heat on a minimum of fuel.

Yours truly,

C. Cunningham,
R. R. 3, Fergus.

Elora, Ont.

April 6th, 1921

The Hall Zryd Foundry Co. Ltd.,
Hespeler, Ont.

Dear Sirs:—

The Pilot Superior Pipeless Furnace installed in our home last fall has proven satisfactory.

The heat was evenly distributed throughout the house while the cellar was absolutely cool.

I can recommend the Pipeless Furnace for heating the home.

Yours truly,

Lewis Cameron,

Stationary Engineer.

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Hespeler, Ontario

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA
ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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CONTENTS

Annual Convention of Canadian Society..... 17
Suggest New Plan of Organization..... 18
Year's Work In Ontario Society..... 19
Creating Uniform Sanitary Laws..... 20
Difficulties in New Brunswick Society..... 20
Should Remedy Marketing of Plumbing Prices..... 21
Making an Executive Body..... 22
Organizing Western Canada Plumbers..... 23
Ventilation Now Principal Feature..... 23
Inefficiency of Wholesalers..... 24
Need Universal Sanitary Standards..... 25
Various Trade Branches Convene..... 26
Formation of Quebec Society..... 27
Annual Convention of P. E. I. Plumbers..... 27
Improving Quebec Sanitary Conditions..... 30
Getting Business Through Advertising..... 26
Problems of the Heating Engineer..... 31
News from Here and There..... 33
Editorial Comment..... 34
Market Reports—Montreal, Toronto and Winnipeg..... 35-46

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"Made In Canada"

Annual Convention of Canadian Society

Parent Body of Domestic Sanitary and Heating Engineers Holds 24th Annual Convention in Quebec City—Advantage of Uniform Prices Emphasized—Development of Trade Extension in Canada—Manufacturers and Wholesalers Confer with Delegates

(By Sanitary Engineer Staff Correspondent)

In the council chamber of the City Hall at Quebec, the 24th annual convention of the Canadian Society of Domestic Sanitary and Heating Engineers was formally opened with about 55 members present. Among those attending were:—J. E. Walsh, Montreal; T. Latourelle, Montreal; Jos. Griffin, Montreal; J. F. Murnaghan, Charlottetown; J. E. Matte, Quebec; J. C. Huot, Quebec; F. Brosseau, Quebec; A. Noel, Montreal; J. B. Pettigrew, Toronto; F. Gingras, Quebec; J. L. Letart, Quebec; U. F. Drouin, Quebec; E. F. Wright, Toronto; W. J. Cracknell, Toronto; R. I. Hearn, Toronto; S. R. Byrne, Toronto; P. Paradis, Quebec; W. G. Berland, Montreal; D. A. Bethume, Montreal; H. Mahoney, Guelph; C. Baker, Prescott; G. F. Frankland, Toronto; T. J. Minnes, Brantford; E. G. Brosseau, Quebec; J. A. R. Seguin, St. Hyacinthe; John Watson, Montreal; C. H. Chapman, Toronto; K. B. Allison, Toronto; Stanton Jennings, Toronto; T. Bissonette, Levis; James Buchan, Montreal; M. Germain, St. Romuald; J. D. Germain, Three Rivers; A. Charrette, Montreal; H. Lavigne, Montreal; W. H. Hornsey, Galt; W. H. Pinkett, Galt; D. Brown, Galt; T. M. Maxwell, Toronto; D. K. Trotter, Montreal; H. C. Weinraub, Toronto; P. C. Ogilvie, Montreal; Jos. A. Francoeur, Montreal.

His Worship, Jos. O. Samson, Mayor of the city of Quebec, read an address of welcome. The Mayor pointed out that he realized the importance of sanitary plumbing, and he sincerely assured the delegates that recommendations as a result of their deliberations would receive the serious consideration of the City Council. He stated that Quebec was full of unique buildings which must be preserved, and in order to conserve them they must be modernized according to needs of sanitary science. The city too was growing fast and for the safety of the public by-laws must be passed and put into force with care so that in future all buildings put up would have the most modern improvement.

Following the Mayor's address, business was proceeded with and the following committees appointed:

Credential Committee—G. F. Frank-

land, Toronto; U. F. Drouin, Quebec; D. K. Trotter, Montreal.

Audit Committee—J. Watson, Montreal; F. Gingras, Quebec; R. Hearn, Toronto.

Resolution Committee—E. G. Brosseau, Quebec; Major D. Bethume, Montreal; H. Weinraub, Toronto; T. J. Minnes, Brantford; J. C. Huot, Quebec.

Nominating Committee—P. C. Ogilvie, Montreal; T. Maxwell, Toronto; E. Matte, Quebec; H. Lavigneur, Montreal; J. Cracknell, Toronto.

The conference with manufacturers and wholesalers, held in the afternoon is outlined fully elsewhere in this issue.

On Wednesday morning the new officers for the ensuing year were elected, (as shown elsewhere.)

Many Offices go to the East

It will be observed from the names of the officers for 1921-1922 that the delegates from the East will fill practically all of the important posts



TELLES LATOURELLE

Montreal, elected president of the Canadian Society D. S. & H. E. for 1921-22 at the convention held in Quebec

this year. The men that have been selected are capable and experienced and much should be accomplished by them that will promote the welfare of the Society during the coming year.

Motion to Confine Delegates to Convention

Considerable discussion arose over a motion submitted by President Mahoney to confine the number of delegates attending the annual convention of the Canadian Society to the officers and Provincial Presidents, the expenses of the latter to be borne by the Provincial Associations. This idea had the general approval of the delegates but the Montreal group thought that the Provincial Vice Presidents should attend as well and that all expenses should be borne by the Can. Society. This would necessitate increasing the per capita tax from \$1 to \$3 or \$4 and the Toronto group felt the members would not pay the increase. The Montreal group felt different. The original motion was put to a vote and lost so no change is made.

In the afternoon at 4.30 p.m. the delegates were taken by special car to visit St. Anne de Beaupre and later to the Kent House at Montmorency Falls, where an informal banquet was tendered to the members by the manufacturers and wholesalers.

At the banquet T. J. Minnes spoke for a few minutes on, "The Best Means of Raising the Efficiency of the Industry." Mr. Minnes was to have taken this subject up on Tuesday evening but it was deemed advisable to defer his address until the evening of the banquet when more would have an opportunity to hear the address.

Mr. Minnes had very little time at his disposal at the banquet for his remarks owing to the necessity of leaving early, but he gave some very valuable points on Trade Extension which were well received.

"Trade Extension," said Mr. Minnes, "is the biggest question in the world. The day has come when plumbers cannot sit in their offices and wait for business to come to them. Anybody can make such sales. Plumbers should go out and show consumers that they need plumbing

goods." The speaker stated that both the craft and the wholesalers listen eagerly to ideas but fall down in acting upon them.

Value of Trade Papers

He asked the wholesalers and manufacturers how many of them could point to a particular article they had read in the trade papers recently. He strongly urged the craft to give more time to reading their trade papers and stated that it was just as important for them to read their trade papers as it was for their children to go to school.

The speaker advised the craft to avail themselves of a cost service. Its use would save them a lot of time and money. He also pointed out the value of a retail cost service. "In any city where such a service is not in use you will get different prices from almost every dealer." The speaker asked what effect this had on the public and stated that the only way to get the confidence of the public was to have uniform prices.

New Secretary

A change effected by the election of officers was that D. K. Trotter, Montreal succeeds G. F. Frankland, Toronto, as Secretary of the Society.

President Mahoney in his closing remarks at the convention thanked the members for their support and hoped that the new officers would enjoy their work as much as he had his.

Following this a vote of thanks was given to the trade press for taking notes at the convention.

In looking back over the three days the delegates convened and enjoyed the hospitality of the Quebec members it is little to say that the delegates will not forget the kindness and good fellowship extended so heartily to them.



P. C. OGILVIE

Montreal, elected chairman of the Apprenticeship Committee, Canadian Society D. S. & H. E.

SUGGEST NEW PLAN OF ORGANIZATION

Lack of Funds Due to Insufficient Per Capita Tax Hinders Organization Work—Work of Trade Newspapers is Appreciated

Report of President Harry Mahoney to 24th Annual Convention Canadian Society, D. S. & H. E. in Quebec City.

IN presenting my report at this twenty-fourth Annual Convention of the Canadian Society of Domestic Sanitary & Heating Engineers, I feel that it will not differ much from those of my predecessors who, like myself, learned from study and experience that it was impossible to accomplish an end without the means, by which I mean that the per capita tax now received is not sufficient to permit of any organization work whatever.

I appreciate and thank you, gentlemen, for the honour you conferred upon me in electing me as your President, but regret that the lack of means above mentioned, prevented anything being done to further the work of our Society. This is not a new thing as your worthy President of last year



HARRY MAHONEY

Que'ph, Ont., retiring president of Canadian Society D. S. & H. E.

dwelt at considerable length on the same question.

It is with pleasure that I mention the good work done by the Sanitary Engineer, Plumbers' Trade Journal and Sanitary and Heating Journal, in showing through their columns, the benefits which might be received by being members of this Society, you as a Society, and your President would be lacking in appreciation if we did not make particular mention of the valuable work done by our own Secretary Frankland. He is our main stay.

Notwithstanding the seeming failure to make this Dominion Organization a success, I am still firm in the opinion that one should exist in the future, but with amended constitution

and by-laws; may I be allowed to offer a few suggestions along this line. First, the Presidents of the several provinces to constitute a parent body, they to elect their own president and secretary from among their number, preferably from the province in which the next Convention shall be held, each Province to pay the expenses of their President delegate to the Canadian Society, the expense of the secretary to be paid by the parent body. The Canadian Society to hold its annual session at the same time as the Provincial Convention is being held. The only matter to be dealt with by the Canadian body to be questions of Dominion character or any others which may be referred to it by the Provinces.

I am indebted to the Ontario Society for much valuable information obtained at Evansville, Indiana, last December, having been sent with the Toronto delegation to study Trade Extension in the plumbing and Heating industries.

The Ontario Convention held at Toronto, on April 7th of this year, with the valuable assistance of several of the manufacturers and jobbers, perfected a Trade Extension organization, with Mr. T. J. Minnes, of Brantford, President, and Mr. Larry Anthes, of the Anthes Foundry Co., Toronto, as Secretary-Treasurer. On Tuesday evening at 8 p.m., Mr. Minnes will address the convention on this most important question.

The programme shows that there will be considerable business to transact in the three days and many reports of importance to discuss. I would therefore ask that the members be on hand so we can start business promptly.

I trust that this convention meeting at Quebec City will be a success and will materially assist in making our Canadian Society greater.

(Sgd) Harry Mahoney,

President.

PUBLISH REPORTS IN FRENCH

Reports in French of the formation of the Quebec Provincial Society of Domestic Sanitary and Heating Engineers, and of the Quebec Vice-President to the 24th annual convention held in Quebec, will be run in a later issue of Sanitary Engineer for the accommodation of the French speaking sanitary and heating engineers who will be interested in these reports.

Sanitary Engineer planned to run the reports referred in French in this issue but the present printing difficulties made it impossible.



YEAR'S WORK OF ONTARIO SOCIETY

Sum of \$4575 Raised to Inaugurate Trade Extension Movement in the Province—Jobbers Required Some Education—Local Conferences of Operators Prove Effective

Report of T. J. Minnes, Ontario Vice President, before 24th Annual Convention Canadian Society D. S. & H. E. Quebec City.

OFFICERS OF CANADIAN SOCIETY D. S. & H. E. 1921-22

President, T. Latourelle, Montreal
Vice-President, T. J. Minnes, Brantford, Ont.

Secy-Treasurer, D. K. Trotter, Montreal.

Provincial Vice-Presidents

Alberta, R. J. Priestly, Calgary
British Columbia, J. A. Anderson, Vancouver

Manitoba, A. T. Karnaghan, Winnipeg.

New Brunswick, Geo. S. Dorman, Moncton

Nova Scotia, H. G. Hagen, Halifax

Ontario, T. Maxwell, Toronto

Prince Edward Island, J. F. Murnaghan, Charlottetown

Quebec, E. Matte, Quebec city.

Saskatchewan, C. A. Green, Moose Jaw.

Chairmen of Committees

Sanitary, E. G. Brousseau, Quebec
Heating, Major D. A. Bethune, Montreal

Ventilation, F. Gingras, Quebec

Legislation, J. Francoeur, Montreal

Apprenticeship, P. C. Ogilvie, Montreal

Essay, J. C. Huot, Quebec

AS Vice-President of the Ontario Society, I beg leave to report as follows for the year 1920-1921.

Throughout the past year our Society has enjoyed prosperity throughout the Province, our membership not increasing to any great extent, but pleased to say that we have at least held our own, and, as I consider, gratifying when taking into consideration the quiet period which we are passing through. I will not burden you with any figures or statistics as, no doubt, your secretary will include these in his report.

I wish to state that the Ontario Society held their Convention on April 7th and 8th in Toronto which was educating and successful from every standpoint. At this Convention my term had expired as president of the Ontario Society, and therefore, will at this Convention automatically relinquish the office as Ontario Vice-President of the Canadian Society, which office I have felt it an honor to fulfill, and which was always my endeavor to the extent of my ability and time at my disposal.

Jobber Required Education.

Our efforts in the past year have been practically concentrated on the Trade Extension movement, in the way of educating the plumber, manufacturer and jobber. We have found that the latter requires considerable education as well as the plumber. However, I am pleased to report that at the Ontario Convention, the Canadian Trade Extension Bureau was organized with the following officers elected by a joint meeting of manufacturers, wholesalers and operating plumbers.

T. J. Minnes, Brantford, President.

G. C. Crawford, manager of Standard Sanitary Mfg. Co., Vice-Pres.

J. H. Cummings, plumber, Welland, 2nd Vice-Pres.

R. E. Belyea, plumber, Toronto, 3rd Vice-Pres.

L. L. Anthes, soil pipe manufacturer, Toronto, Treasurer.

G. F. Frankland, Toronto, Secretary.

Since the organization there has been several meetings of the directors to talk over ways and means of raising the necessary funds and the appointment of a managing secretary. We have been successful to date in raising the sum of \$4,575.00, but have not

quite enough money yet, as we wish to start with at least \$7,500.00. There are still a few manufacturers who have not made a contribution as yet, but we hope and expect they will after due consideration as these gentlemen are waiting for a policy to be announced, their ideas being more or less in diverse with our policy. Or in other words, some of the manufacturers have an idea that what is required

at this time is a campaign of advertising with the plumbers supporting this propaganda. However, those who are conversant with the plumbing trade and Trade Extension ideas believe that this cannot be successfully performed until the plumbing trade is educated to this point. That is really one of the main planks in the Trade Extension platform. We hope at some date in the near future to be able to announce that the Trade Extension is in actual operation.



T. J. MINNES

Brantford, Ontario, elected vice-president of Canadian Society D. S. & H. E. for 1921-22.

Late in April we had a conference of plumbing operators in Hamilton to consider rates of wages, hours of labour, and agreements pending, this being the second conference of its kind held in Ontario, and which we have found to be very successful. I am of the opinion that if this idea was carried out in all the provinces that a clearer understanding would exist between employee and employer; also a better understanding amongst the employers themselves.

The above report covers the main activities of the writer while Ontario Vice-President of your Society.

Thanking you for the honour bestowed upon me, and best wishes for a successful Convention.

Thos. J. Minnes,
Ontario Vice-President.

DIFFICULTIES IN NEW BRUNSWICK SOCIETY

Membership List Reduced Due to Unscrupulous Action of Jobbers' Representatives in Selling Direct to Consumer or Contractor

Report of G. S. Dorman, New Brunswick Vice President to 24th Annual Convention Canadian Society D. S. & H. E., Quebec City.

I REGRET that our membership list has been reduced by the loss of six members due to the unscrupulous actions of representatives of certain jobbing houses in selling direct to the consumer or contractor.

We have tried to keep these jobbing houses in line, but it is next to impossible. They will make all kinds of promises only to break same at the first opportunity, with the excuse that if they did not sell these parties some other house would.

The latest move of our contractors here is to get some master plumber who is not connected with the Association to order the goods and ship them to the point that they are to be installed, paying him cash and allowing him a small commission on the sale.

Of course this class of contractor or consumer feel that they have won a great victory in blocking the plumbers from securing legitimate trade which would enable them to continue business and pay their bills.

The New Brunswick Society is making an effort to reclaim the lost members and also those that are not or ever have been connected with the Association, and we feel that they would be easily won over if they were not interfered with or influenced by representatives of jobbing houses who tell them that the Association will not assist or benefit them in any way as they can buy just as cheap and get as good terms outside the Association as in. I do not mean to infer that all representatives do this as the Association has some good supporters representing the trade.

I have no doubt that other Provinces are having the same trouble as New Brunswick along these lines.

I regret that New Brunswick will not have a representative at the Dominion Convention at Quebec this year but if I can possibly make arrangements I will endeavor to be present in my capacity as Provincial Vice President.

Our present membership is 31.

GEO. S. DORMAN,
Vice Pres. for New Brunswick

CREATING UNIFORM SANITARY LAWS

Problem in Legislation is to Establish Uniform Legislation Covering All Conditions in City and Country—Suggest Get-together Movement to Curtail Friction Between Employer and Employees.

(Report of J. A. Francoeur, Montreal, Chairman, Legislative Committee before convention of Canadian Society D. S. & H. E., in Quebec)

To the Officers and Members, Canadian Society of Domestic Sanitary and Heating Engineers.

"You, no doubt, know that the present regulations for Sanitation and Heating are a draw back to the Sanitary Engineers, if you consider that cities surrounding big centres have altogether different Sanitary regulations.

As President of the Legislative Committee it was my duty to take advantage of my position so as to create uniform Legislation concerning the Sanitary and Heating by-laws of one Province.

It is a pleasure for me to draw your attention to the fact that the city of Montreal has already very seriously considered during this year, together with her neighbors, a general uniform Sanitary Regulation. Unfortunately, up to now, conditions have not changed, but I firmly believe that, before long this new by-law will be put into force.

You all remember the troubles that have existed between employers and

employees during the past year, and I dare say that it is now time for us to get down to work, and not only think, but put a little action with it, so that we will not come across in the future, what we have been running up against in the past.

Courses in Technical Schools

I have had the opportunity on different occasions, of meeting men who were interested in Sanitation & Heating as well as in general Construction, and all share my opinion, that we should begin a get-together movement and obtain support from the Provincial Legislatures, so that Sanitary and Heating Courses be taught in our Technical Schools.

The two propositions mentioned above are not, for many of you, new ones, as you have had time and again the opportunity of finding the weak spots of to-day's by-laws.

I would therefore suggest that they be debated before an open meeting of the present Convention.

(Sgd) J. A. Francoeur
Chairman Legislative Committee

Should Remedy Marketing of Prices

Deplorable and Detrimental to Have to Give Prices to General Contractors Who Tender for Total Equipment of Building—Relations With Supply Houses—Good Relations with Catholic Syndicate—Big Growth Expected in Quebec

Report of Vice-President Telles Latourelle to 24th Annual Convention Canadian Society D. S. & H. E., Quebec City.

AS Vice-President of the C. S. of D. S. and Heating Engineers,

I take much pleasure in presenting a report to this 24th annual convention held in the City of Quebec.

It has come to my notice that the year 1920 was remarkable for several reasons, business in general was favorable to most of the members of the society, work being plentiful in all districts and above all one good move I wish to bring to your notice is the new organization of plumbing and steamfitting tradesmen, and also several improvements brought to the execution of plumbing, steamfitting and ventilation industries.

I think it is my duty to mention at this 24th convention that the Province of Quebec has seriously accomplished good work in the way of organization and the credit is due principally to the Quebec members who have taken a lead in this movement, and I hope that within three months the Province of Quebec will be far ahead of the Province of Ontario which has given us a good example. But it must be admitted that the Province of Quebec has somewhat branched out in the manner of forming an organization with their workmen, because for several years the S. of D. H. Engr., has

been misled by the workmen's unions; therefore, it was high time to put a stop to such misunderstanding, and we have refused to recognize individual unions, but now find it opportune to give each workman his individual merits according to the fulfillment of his work towards his employer, and above all, the maintenance of open shop.

The Catholic Syndicate.

The year 1920 has also furnished us with a new organization of plumbers and steamfitters known under the name of the Catholic Syndicate of Plumbers and Steamfitters. This Syndicate has some very good principles and advantages to its credit. Numerous meetings between the Syndicate have resulted in an agreement which was made for 12 months.

This first agreement expired on the 1st of May last and the same agreement was renewed for another 12 months for the ensuing year, and beside this agreement or contract, the Master Plumbers' Ass'n., has the privilege of recognizing any other Syndicate or National Union providing that the conditions or by-laws are the same or similar to these now in force with the Catholic Syndicate.

The name of the Catholic Syndicate is only a distinctive title, having in mind good understanding and friendship between employers and employees. The Syndicate is administered by experienced men who know how to handle groups of workmen and these men at the head of the Syndicate apply the correct manner of making and executing their agreement so as to be appreciated by the employers; no preference is shown whatsoever, as capable and experienced non-catholic members of the Syndicate are all welcome the same as any other confreres.

I am pleased to say that the by-laws governing the Syndicate have been sanctioned and approved by non-Catholic authorities. I quote here a few words from Sir William Price, President of the Price Bros. Co., Ltd, who has ordered the following notice to be put in the lumber mills at Jonquiere and Kenogami. "The Price Brothers Co., Ltd., will not tolerate to be dictated to by any one belonging to any international union, and such member will not be admitted or given any work in the mills. The Canadians can very well manage their own unions or organization without having to refer to outsiders to settle affairs between employers and employees, etc., etc." This is enough to prove that we have made progress in supporting a syndicate having strictly Canadian ideas.

Business with General Contractors

It is sometimes deplorable and detrimental to have to give information

and prices to general contractors who tender for the total equipment of a building. I wish to bring to your notice that prices for heating and plumbing which are given to a general contractor are not always kept a secret. It is left entirely in the hands of the one who secures the general contract to deal at his own discretion, to cut prices at liberty so as to make as much as possible out of the subcontractors; sometimes such a contract is almost auctioned out like second-hand furniture, and more often the work of installing plumbing and heating is allotted to one who has never even tried to make a price, but by simply saying Mr. So and So's price is so much, can you meet same? and that ends it.

There should be some remedy that this society can impose to put an end to this marketing of prices. A committee can be appointed to interview the association of Architects and see if some improvement can be arrived at so that plumbing and heating contracts would receive fair play.

Relation with Supply Houses.

In connection with this subject I would say that a great deal has been said, written, and discussed regarding the manner which some supply houses have of protecting the plumbing trade.

I was told by an official of a large supply house, also a manufacturer of a very extensive plant, that they like to do things their own way. That is all correct, but the way to do things must not be injurious to the plumbing and steamfitting community, and I say that a supply house who sells its products to every and anybody is not entitled to the patronage of any member of this association. I strongly advise that when a representative calls for your support he should be always received courteously, but no business transaction should be entertained until the rights of the legitimate plumber are respected, and I am sure that if you will adhere to this ruling you will, within six months, notice that your clients will come back to you saying that they are sorry for being away so long from the legitimate and upright plumbing establishment.

I hope I have not been personal in my remarks, what I said was in good faith and without prejudice to any one.

Telles Latourelle,
Vice-President.



J. FRANCOEUR

Montreal, Chairman of the Committee on Legislation, who was re-elected for 1921-22.

MAKE SOCIETY AN EXECUTIVE BODY

Secretary Frankland Gives Notice of Motion to Change Form of Canadian Society—Progress of Trade Extension.

Report of Secretary G. Frankland, to 24th Annual Convention Canadian Society, D. S. & H. E., in Quebec City

I AM again privileged to place before you my stewardship of the responsibilities and duties be- holden to my handling of the position you selected me to last Convention, and I trust this summing up will merit the trust that you reposed in me.

One of the most essential items to my mind, that was considered at the last Convention, for the general welfare of our Society, was the question of so arranging the affairs of the Society that it functions as an executive body, and thus permit it to carry out a wider scope of usefulness, inasmuch as it could more effectually touch the numerous provincial associations, and bring about a closer relationship and co-ordination of the different Provincial Associations' activities than exists at present.

I covered this matter at length in my past year's report, and will refrain from again including my ideas in this report, but will insert the Notice of Motion, which was the outcome of the discussion last year, on this subject, which will bring out the desired particulars in debate.

That Clause V of the Constitution be amended to read: "That the Canadian Society of Domestic Sanitary and Heating Engineers shall consist of a President, Vice-President and Secretary-Treasurer, and the President of Provincial Associations. Any clause that may be affected by the change in Clause V be amended to conform with the meaning of this resolution."

As your delegate I attended the Annual Convention of the National Association of Master Plumbers held in Pittsburg, Pa., held in June, 1920, and was accorded the utmost courtesy by the officers and members, being granted the privileges of the entire convention. I also attended conferences of the "National Secretaries' Bureau," which is composed of all local and State Secretaries throughout the United States. This Bureau during the past year has had committees working on the many features that enter into the activities of Trade Association such as ours and will submit report at this year's National Convention, which takes place in New Orleans on the same days as we are in Convention, and I would suggest that a telegram of good will and best wishes be dispatched to your brother craftsmen of the United States from this Convention extending our fraternal greetings.

As a member of the Secretaries' National Conference I have been favoured from time to time with particulars as compiled and issued by the Conference, in respect to the Trade Agreements and Association activities throughout the States.

The approval of the American Plan of Employment, or in other words, Open Shop, was one of the outstanding features of the Pittsburg Convention.

The approval of the National Trade Extension Bureau at Evansville, to the extent of a Two Dollar per Capita by the National Master Plumbers' Association, and the increase of their membership fees to Five Dollars per member, gives some idea of the need for finance to successfully operate an Association of this kind.

The benefits being derived by our American craftsmen from their National Trade Extension Bureau at Evansville have proved that the methods of trade improvement carried out by this Bureau are correct and what was needed by our industry.

Trade Extension

During the past year, a party of twelve, including our President and Provincial Vice-President, T. J. Minnes, with others from Toronto and throughout Ontario, visited the Bureau at Evansville, being most cordially received and enlightened as to the activities of the Bureau by its most able and congenial manager, Mr. Wm. J. Woolley, and his entire staff. To this visit and the untiring efforts of Mr. Thos. Minnes, we owe the inauguration of a Canadian Trade Extension Bureau, and I am sure President Minnes of the Canadian Bureau will announce at this Convention the consummation of his efforts, in respect to the formation of the Canadian Trade Extension Bureau.

I have been favoured with reports from Alberta, New Brunswick, Ontario, Prince Edward Island, Saskatchewan and Quebec, that shows the spirit of Association will not down, as these Provinces continue to carry on, but for Nova Scotia, Manitoba and British Columbia I regret to have to report no progress.

I wish to make mention of an address that was given by our Provincial Vice President for Quebec, Mr. E. J. Brousseau, on Sanitary Plumbing, before the members of his local Rotary Club, and which appeared in the columns of trade papers during the past year. To such efforts as this of our members we owe many thanks, because in no way that I know of can we do as much for our calling as by placing the facts pertaining to the importance that surrounds our industry, before our fellow citizens, in such a credible manner, as this subject was dealt with.

I also wish to mention such stalwarts as George Dorman, of Moncton, who is ever ready to do his bit. Robert J. Priestly, of Calgary, who is again doing duty in Alberta, and Mr. J. F. Murnaghan, of Charlottetown, Prince Edward Island, who again leads the Island Society. In centres such as Montreal and Toronto, we are blessed with some real supporters, who are ever ready and willing to carry on, but wish to particularly mention one of my own City, and that Gentleman is our Grand and Only John Wright. To us

in Toronto, and I must include Ontario, he has become our Rock of Gibraltar, and his efforts on behalf of our Craft will assure for all time a monument and guide for those who follow on.

To one and all I wish to express my hearty thanks, and extend to our entire Craft my sincere wish for their prosperity and good health.

G. F. Frankland,
Secretary.

Communication from British Columbia
Secretary Frankland read the following communications from the secretaries of the British Columbia and Manitoba Associations:

Vancouver, B.C.,
May 17th, 1921.

"We are still of the same opinion, and would very much like to avail ourselves of the opportunity to become members of the Canadian Society, but owing to trade conditions being far from what they should be and the Association being taxed as much as is deemed possible, we are not in a position to either entertain an affiliation or sending anyone as delegate to your coming Annual Convention.

Wishing, however, the Convention the success it deserves, and thanking you for your letter.

R. G. Hargreaves,
Secretary,

Winnipeg, Can.

I regret to say that the Winnipeg Society of Sanitary Heating Engineers is practically out of existence. I had the honor of being president last year, but we have not elected new officers for the coming year. In fact, there was not sufficient present at our yearly meeting to form a quorum, and as far as attending the annual convention to be held in Quebec on June 6th, 7th and 8th, I am sure it will be impossible for the association to send a delegate. Personally, I would very much like to be present to mix with and renew acquaintances among the members.

Chas. D. Kirk.

OFFICERS OF QUEBEC PROVINCIAL SOCIETY D. S. & H. E. 1921-22

President, E. Matte, Quebec

Vice-President, J. C. Huot, Quebec

Secretary, J. L. Letart, Quebec
Chairmen of Committees

Sanitary, E. C. Brousseau, Quebec

Legislation, F. Gingras, Quebec

Heating and Ventilating, J. A. R. Seguin, Ste. Hyacinthe

Apprenticeship, T. Bissonette, Lévis

Essay, M. Gervais, St. Remond

Auditors, Messrs. Caron, Delorme, Landreville.

ORGANIZING WESTERN CANADA PLUMBERS

**Suggests Canadian Society be Executive Body
Only Dealing with National Problems and Inter-
provincial Bodies to Deal with Local Questions**

**Report of R. J. Priestly, Alberta Provincial Vice-President
to Convention of Canadian Society D. S. & H. E., Quebec**

To the Officers and Members of the Canadian Society of Domestic Sanitary and Heating Engineers.

I beg leave to submit my report as the Alberta Vice President. The Alberta Provincial Association has a membership of fifty-three, thirteen of whom are new members enrolled during the past year. Edmonton, Medicine Hat, Lethbridge and Calgary have local associations who are affiliated with the Provincial organization, as well as individual members from different part of the Province. We issue a retail Price Book to the members at a small fee per month, which is kept up to date by the Provincial Association.

The Province is divided into districts for organization purposes and a chairman appointed for each district, whose duty it is to obtain new members for the Association, in this way we hope to increase our membership materially.

Two years ago when we re-organized, the need of a Provincial Plumbing by-law was felt in order to protect the health of the rural population. At that time a Committee was appointed to wait on the Provincial Health Department. This Committee was later received by the Provincial Minister of Health in a very cordial manner and handed over to the Provincial Sanitary Engineer, and with his co-operation new by-laws were drafted and came into effect last October. While we were not successful in getting all we went after, we appreciate what we did get and believe that we will be able to get the remainder in the near future. The City of Calgary I believe is the only City which has an examination for Steam Fitters, and this examination has to be taken by both Master and Journeymen.

Advocate Separate Letting of Plumbing Contracts

For the past two years we have been advocating the letting of Plumbing and Heating Contracts separate from the General Contract but without success. We are now advocating that when submitting his tender the General Contractor state who his sub-contractor is to be, (this to stop peddling the sub-contractors price after the job has been let) and that when the General Contractor submits his estimate for payment, he state in such estimate the amount due on the sub-contract, for Plumbing and Heating, and the payment be made direct to the Plumbing and Heating Contractor, this of course insuring the sub-contractor in getting his payment when due.

To Organize The West

At our Convention held in March last, our Provincial Association went on record as being in favor of organizing an Inter-Provincial Association at the same time retaining our affiliation with the Dominion Association. The Inter-Provincial Association we propose organizing will be composed of the four Western Provinces. We feel that we are too far away from the parent body to get the desired results that could be obtained through an Inter-Provincial Association and at the present we are working along those lines. While we are working harmoniously with the wholesalers in Alberta, sometimes we have wholesalers from the other Provinces causing a little trouble, for instance; just recently a wholesaler from the East of us sent a catalogue broadcast through the Province giving the quantities of material required for a five fixture job with the wholesale prices attached. This you can readily see could be handled by an Inter-Provincial Association much better than by the Dominion Association. Then again we have the question of making plans, taking off quantities of material, and the sending of discount sheets to people who should not have them. My personal opinion is, if I may be permitted to express one, that the Dominion Association be an Executive body only and should be used for Dominion legislation only as its chief Officers will always be in the East near the seat of the Dominion Parliament. Organize Inter-Provincial Associations whose Officers would make up the Dominion Executive Body. You can quite readily understand the expense entailed to have delegates from the extreme East and West attend Conventions, in addition to their per Capita Tax is prohibitive while the expense of an Executive Officer could be borne by his Inter-Provincial Association, as in the West divided between the four Provinces and therefore would not be too heavy on any one particular district. To create interest among the members, they must know what is being done between Conventions as well as at them and how the legislation adopted at them is carried out. We read a lot about Trade Extension in the proceedings of your last Convention but up to the present we have neither seen nor heard of results through the Dominion Association.

Trusting you will have a very successful meeting and that your efforts will be of benefit to the Craft throughout the Dominion.

R. J. PRIESTLY, Calgary

Alberta Provincial Vice-Pres.

Ventilation Now

Principal Feature

The Canadian Society of Domestic Sanitary and Heating Engineers.

"Your Ventilation Committee beg to report: That during the past year this branch of your business has made considerable progress and is now recognized as one of the principal features in all good buildings.

We would draw to your attention the unsanitary condition of many dwelling houses and especially the class of apartment house which has come into vogue of late years; where the bath, water closet, basin and kitchen are one, made out of a clothes closet with no attempt at ventilation. We would recommend that this matter be given your careful consideration. On behalf of the Ventilation Committee

D. A. BETHUME,

Chairman."



MAJOR D. A. BETHUME

Montreal, formerly chairman of the Ventilation Committee who was elect-chairman of the Heating committee for 1921-22.

NEW FIRMS

Mr. C. H. Watson a war - who previous to enlistment plumbing business in S. and repairs business has been serious!

"The Inefficiency of Wholesalers"

No Definite Plan Evident in the Plumbing Industry—Comparative Ability of Plumber and Supply House to Create Business—Wide Field of Potential Business

Report of H. A. Weinraub, Chairman Essay Committee to 24th Convention Canadian Society of D. S. & H. E. in Quebec City.

THE inefficiency of the wholesalers is making the Master Plumbers and Fitters unsuccessful business men. The Master Plumber and Fitter of to-day, and those to come in the future, will not become efficient until the root of inefficiency has been entirely removed, and by that I mean that all wholesalers dealing in plumbing and heating supplies must first become proficient and then the Master Plumber and Fitter will automatically fall in line. The fundamental principles of all successful business is the carrying out of a sound policy laid down by those in control of it based on a definite plan. In our industry there seems to be no such policy, and efficiency is therefore an unknown word in the Plumbing and Heating industry. Let us illustrate this by an example: The Architect plans the building, the Builder follows that plan, and if the plan is good the building is good, whereas if the plan is poor the foundation is weak, the structure faulty and the owner dissatisfied. Who is to blame, but the Architect who planned wrongly.

Wholesaler is the Architect

In the plumbing and heating industry the wholesaler is the Architect, the Master Plumber and Fitter the builder and the public the owner. The public naturally pay for all the inefficiency and none of us can escape shouldering our share of the condemnation arising from this inefficiency which has its root with the wholesaler. In making this statement I am not prompted by any antagonism towards any branch of our industry, nor do I hold brief for another branch, but as you have elected me to the Chairmanship of the Essay Committee, I feel it my unbounded duty to call to your attention the weakness which exists in the chain of marketing plumbing and heating supplies. Let me submit some questions on this matter and might I ask the serious consideration at this time of all those present so that sane, definite answers may be the immediate result.

1. What demand is created by the supply interests for plumbing and heating material?
2. Does the Master Plumber and Fitter create any demand for plumbing and heating goods?
3. Is the neat display of goods in a plumbing and heating store of advantage to the supplying interests?
4. What policy have the supply interests adopted to take care of question 3?

5. Should the wholesaler deliver material in quantities of less than \$25.00 invoice value?

6. Should the wholesaler make a delivery charge on quantities of less than \$25.00 invoice value?

7. Should a Master Plumber and Fitter carry a staple line of stock?

8. Should a Master Plumber and Fitter have to make pick-ups of small jobbing material from wholesalers and charge the customer for time lost in procuring same?

9. Should a Master Plumber do business from his home in business hours?

10. Should a Master Plumber do business from a store?

11. Should a Plumber or Fitter receive credit when he starts in business, minus capital?

12. Does a Plumber or Fitter doing business from a residence without capital create business for the wholesaler?

16. Is it the duty of the supply interests to give their moral and financial support to a plan whereby the Master Plumber and Fitter is trained to the possibilities of increasing the volume of plumbing and Heating Sales?

17. Should there be a preferential for some Master Plumbers and Fitters or should buying be based with special discounts for quantity?

18. Should booked orders be eliminated?

In asking above questions my sole idea is to find the cause of this business being in the rut that it is in as I believe the rut has been, and is allowed to exist from lack of broad vision and selfishness on the part of the supply interests. We need men who will think big, act big, and not be swayed by petty jealousies, and I feel that the wholesalers should lead the way.

Not until the whole of the industry is elevated to a higher plane will business men invest their good money in a proposition that shows as little returns for the money invested. I know of a number of Master Plumbers operating from their homes who have invested considerable money in another business because they have lost faith in the possibilities of their own business. This is only to be expected as long as a business requires no capital to start and permits of undeveloped business men starting in it.

We realize we are in one of the most essential businesses on earth, protected by by-laws with penalties attached which prohibits outsiders from doing our work, and yet we cannot make a success of same. There is a reason, gentlemen, and we should find out what that reason is. The plumbing and heating field has not been scratched, nor will it be scratched until the Architects of our industry proceed with a policy for the whole of the trade that will be profitable for the industry as a whole, and Master Plumbers and Fitters can create business and the profits accruing therefrom will be an incentive for them to go after more business. Bear in mind that we are in this business for the money we can get out of it in legitimate profits.

I am submitting this report after giving it considerable thought and hope it will be the means of finding a solution for the remedying the faults of our industry.

H. Weinraub,

Chairman Essay Committee.



H. E. WEINRAUB

Toronto, formerly chairman of the Essay Committee whose essay on "the inefficiency of the wholesalers" as reproduced herewith, brought forth some comment at the convention.

13. Would you consider a Plumber or Fitter starting in business without capital a sound credit risk?

14. Should a Plumber or Fitter starting in business without capital be extended credit?

15. Do you think it is fair for the Master Plumber and Fitter or the public to be burdened with the additional expense caused by bad debts created by the inefficient policy of our wholesalers in extending credit?

Need Universal Sanitation Standards

Small Centres Destined to Grow to Importance and Amendments to Old Sanitary Laws Are Insufficient—Speculative Building a Hindrance to Efficiency—Ontario Spends Large Amount on Waterworks and Sewerage

Report of John Wright, Chairman of Sanitation, to 24th annual Convention Canadian Society D. S. & H. E., Quebec City.

It is with pleasure that I again take the opportunity of presenting to you for your consideration the following facts which are of such great concern to all residents in Canada.

Health: A Question of National Moment

That Health is a question of National moment, no one will dare deny, and the National or Federal Government must play its part and there are legal limitations within which the Federal authorities are able to act Constitutionally, and these must be respected. It is the duty and the prerogative of the Federal Government to have a well organized and equipped Department of Health which shall strengthen and assist the Provincial Departments of Health, which in turn give authority to the Municipal Boards of Health and Civic councils to pass by-laws to establish conditions which would result in a marked improvement in the general Health of the entire community which the people of every class would benefit thereby to an undreamed of extent.

Efficient Methods of Sanitary Plumbing, Heating and Ventilation

The most important problem in the interests of the health of the community is undoubtedly the adopting of efficient methods of Sanitary Plumbing, Heating and ventilation, therefore the larger the city the more important it becomes and it is our duty to seek and obtain legislation along these lines if we would protect and prolong the life of our people.

Federal, Provincial and Municipal Sanitation

While, as I have already said, Legislation is necessarily divided among our Federal, Provincial and Municipal Departments of Health, and laws of varied scope must be enacted by each and all of them, these various laws and regulations and by-laws must be so framed as to co-relate and supplement each other and work together to the up-building and betterment of conditions for the general Health and not so as to destroy or make useless or hinder the working out of the laws and by-laws passed by one or other of them. Health being a matter of national paramount importance the Federal Government should see to it that all matters having for their object the improvement of the health of the people should be speeded up and not allowed to drag along as they have been doing hitherto.

Scientific Sanitation

Scientists, the Medical profession, Sanitary engineers, the Public Councils and Committee have for a number of years been engaged in framing up and introducing measures in our legislation that would result in standards of efficiency along the lines of a Sanitary System based on fundamental

scientific principles which might well be adopted all over the world. These standards can only be established or maintained by a certain amount of restrictive legislation, and the enforcement of restrictive legislation always meets with a great deal of opposition from those who are ignorant of its value and necessity to the welfare of the nation and the protection and benefit of its future life.

General Conditions in Canada

When we turn our attention to the general conditions prevailing throughout Canada, as a whole, we are confronted with the fact that we have,



JOHN WRIGHT

Toronto, formerly chairman of the Sanitary Committee, Canadian Society D. S. & H. E., who has retired from the chairmanship of this committee after long and valued service.

as yet, not generally recognized standards regarding Sanitary Plumbing and Ventilation. There are a multiplicity of laws and by-laws, adopted by the various cities and towns throughout our country, and enforced more or less according to their own interpretation of the moment. Toronto adopted the first plumbing ordinance as early as 1887, which has since been followed by many others, and to-day the majority of our cities and towns have some form of ordinance. There are places where we find recognition of splendid principles, which, if enforced, would make for effectiveness; but, unfortunately, they are not enforced. There are others where we find no recognition that any law exists, so that even Sanitary Plumbing is installed in such a manner that it becomes a menace instead of a safeguard to Public Health.

Our larger cities realizing the im-

portance of the proper installation of sanitary plumbing have endeavoured to so amend their by-laws as to meet these conditions by examining and licensing the men engaged in this occupation, with such good results that others are falling into line, as it is an essential point in placing sanitary plumbing on a properly recognized basis in its relation to Health. We are, however, confronted with the fact that from Coast to Coast there are many varieties of Sanitary Plumbing, some of which testify to the forethought and intelligence of our Boards of Health and Municipal Councils, whilst others are a positive disgrace to the name of Sanitation, and some of the abuses call for serious consideration.

Universal Standard Essential

We must bear in mind that smaller cities and towns are destined to become large centres in the near future, and therefore means should be taken to improve their Sanitary conditions, and this calls for a **Universal Standard**. Mere amendments to their old laws is seldom satisfactory, as they often lack the knowledge of scientific Sanitation, and as they do not recognize any set principles, following along the lines of what some other city or town has done, and which may or may not suit their own local conditions, it becomes evident that we require a **Central Authority** if a set Standard is to be established, and therefore the Federal Government should legislate along these lines, to prevent the useless experimenting and continual alteration of laws in these smaller centres, so that an efficient Scientific Standard of Sanitary Plumbing, Heating and Ventilation may be recognized and established throughout the length and breadth of our country.

Speculative Building a Hindrance to Efficiency

The Speculative Builder, owing to the competitive system prevailing—whose sole aim is the profit he hopes to make on the house when sold, and which he does not intend to ever live in himself, disregards all Standards of efficiency, devotes his talents to securing an attractive outside appearance and in trying to bring the cost of erection down to a minimum, neglects the health of its future occupants. If he cannot evade the law by using inferior materials, he will hire incompetent mechanics, who in turn may sublet the work at such prices that competent men know full well that some means are being taken to evade the law. As thousands of homes are being built every year, we can easily see what will be the result to our future citizens if we do not take the necessary measures here and now to secure such

(continued on page 32)

Various Trade Branches Convene

Manufacturers and Wholesalers Agree to Co-operate with Plumbers in Every Way Possible—Much Renewal of Plumbing Fixtures to be Done—Big Business to be Secured from Rural Districts.

ON the afternoon of the opening day a Conference with the manufacturers and wholesalers was held, which took the form of a series of short talks from the different representatives.

At the beginning of the conference President Mahoney asked Mr. H. Weinraub, of Toronto, Chairman of the Essay Committee, to read an essay on the "Inefficiency of Wholesalers," which is outlined in full in another part of the paper.

Mr. Boucher, Warden King Mfg. Co.; Mr. Wall of the Mott Co. and Mr. Delcourt of the Jas. Robertson Co., said that they would co-operate with the plumbers in every possible way and realized the importance of getting closer together.

Major Anthes, of the Anthes Foundry Co., of Toronto, drove home in a forceful manner several striking facts. He pointed out that sanitation was the foremost necessity to health and the primary requisite in the making of a good race. He stated that many people were prejudiced against the plumbers and their business and considered them a necessary evil. While they are necessary they were, he hoped, not an evil.

Major Anthes urged for more confidence between the plumbers and man-

ufacturers and wholesalers. Without doubt more harmonious relations exist now between these bodies than in olden days, but closer co-operation would accomplish a great deal in the interest of all connected with the trade and the public.

In touching on trade extension, Major Anthes said, thousands of jobs installed 30 years ago needed to be renovated and that trade extension would result in a development of this business. Also, there is no reason why the people in the country should not have sanitary conveniences as well as the city people, and that there is big business to be developed through this channel.

Mr. R. Robinson of the Crane Limited, said, that in the City of Ottawa contractors did not ask for prices, and asked why the same conditions could not exist here. In Quebec he pointed out that they were obliged to sell to contractors because other firms and manufacturers sell them. He stated sincerely that the Crane Co. wanted to co-operate with the trade and would do so in every possible way. Further that the Crane Co. had lost a lot of business when they refused to sell only to plumbers as outsiders were able to buy direct from the manufacturer. Mr. Robinson then asked the question how could this be

eliminated?

Mr. Walsh, of Montreal, in remarks referring to Quebec Province particularly stated that many consumers used the Journeyman Plumber as a means to order through and get the trade prices. In such cases the Journeyman Plumber takes out a master plumbers license by paying the extra fee, and the consumer merely orders his supplies through him. He mentioned that he brought this to the attention of a wholesaler and this firm promised not to sell to the public. The promise, however, had not been kept. Before sitting down Mr. Walsh stated that he wanted to thank the manufacturers and wholesalers heartily for coming to the conference this afternoon.

President Mahoney replying to the speeches made by the manufacturers and wholesalers thanked them for their expressed co-operation, saying that he was pleased to have them at the conference and that the whole idea behind the meeting was to encourage closer co-operation and to help to find ways and means to overcome their difficulty. He pleaded strongly for closer confidence in the future.

Mr. E. G. Brousseau also thanked the manufacturers and wholesalers for attending the conference, and also for their splendid generous subscriptions.

GETTING BUSINESS THROUGH ADVERTISING

E. G. Smith, manager Quebec "Telegraph" Tells Sanitary Engineers in Convention How They Can Use Advertising to Boost Their Business—Importance of Trade Papers Emphasized

Introducing his remarks by a pre-ambule in French, Mr. Smith proceeded to explain many public misconceptions of advertising, emphasizing that advertising does not perform miracles, that it is a simple and economical means of diffusing information of all kinds. He instanced how various campaigns had increased, industrial, agricultural, and military production, and the power of advertising for the recruiting of men during the late war. He pointed out the raising of vast sums of money for war purposes all of which has been effectively accomplished by the employment of various advertising media. The speaker said that advertising produced economical habits which usually have an uplifting tendency.

He said advertising has been a great factor for building good will and that it is destined to be even a greater moral force. "Some advertising creates demand," said Mr. Smith "it follows that none but those propositions bearing the closest scrutiny can survive. Consequently we find a general superiority of ad-

vertised wares as also a superiority in advertisers service, the continuity of which guarantees the public against imposition.

"Again," he said, "every man feels his responsibility for owning a home" and suggested that the present Association of Domestic Sanitary and Heating Engineers form a committee for the purpose of studying the promotion of a campaign which would be nation wide or even conducted locally. The speaker illustrated his remarks by detailing the possible method and the probable cost of such a campaign, making it clear, however, that the broad phase of advertising did not rest alone with the printed word.

Mr. Smith pointed out various institutional campaigns now being conducted on this continent all for the purpose of meeting either crop conditions or opposing public hostility to the purchase of luxuries. He quoted figures showing that the construction contracts for the Dominion of Canada for the first three months of 1921 showed a loss of 35 per cent. over the same period last year.

Referring to the popular idea of

caricaturing the plumber, Mr. Smith suggested that the remedy for improving the status of the trade was entirely in the hands of the Society who could educate themselves at the same time they were educating the public.

Read Trade Papers

"Read your trade papers," advised Mr. Smith "and read them thoroughly." "You will find them a ready reference library and a tremendous source of information." Support the trade papers for the reason that they are your nearest link with the manufacturers."

"Be your own advertising emissary. Talk construction everywhere, interest literary men and bankers, endeavor to address public societies, fraternity meetings, Boards of Commerce and above all use advertising collectively and individually to teach the nine million population in the Dominion of Canada how comparatively easy it is to own one's home and enjoy the comforts of modern sanitation, and heating, not forgetting" Mr. Smith said in conclusion "to show the man in the street some simple rules for financing his property venture."

Various other speakers voiced approval of Mr. Smith's sentiments. Honorable Frank Carrel also spoke a few words of welcome and the meeting terminated with a vote of thanks to the speakers of the evening.

Quebec Provincial Association Formed

Progressive Step Taken by Sanitary and Heating Engineers in Province of Quebec—To Improve Sanitation Conditions Within the Province.

On the first day of the 24th annual convention of the Canadian Society of D.S. & H.E., in Quebec city, preceding the formal opening of the convention, the organization of the Quebec provincial association took place and its membership to the Canadian society was accepted.

The addition of this important link to the Dominion society should add considerable strength to the parent body and will measurably increase the effectiveness of its work throughout Canada.

Without doubt, one of the first undertakings of the new provincial body will be to study the sanitary conditions in towns and cities throughout the province and secure proper legislation that will provide for

Credit is due to the members of the craft throughout the province for getting together and forming an association that will take active steps to secure proper legislation to protect the health of the public and raise the business status of the trade. Credit also is due to Mr. E. G. Brousseau, of Quebec, chairman of the Legislative committee in the new provincial body, for his leading efforts in securing the active support of the prominent members of the craft in forming the new association.

Frank Carrel, proprietor of the Quebec Telegraph congratulated the members and the new organization. He paid a fitting tribute to the craft when he pointed out that he and

other prominent business men in Quebec had endeavored to secure adequate plumbing by-laws for Quebec city without success. He was glad to say that new laws were now being formed as result of an address by Mr. E. G. Brousseau, before the Rotary club, a short time ago.

The officers who will guide the work of the new association during its first year of existence are well selected for their respective positions and much good is expected to be accomplished. Judging from the active interest shown by the Montreal and Quebec members during the convention the new organization has members who will work with a means to an end and their organization should soon be one of the most effective in the Dominion.

ANNUAL CONVENTION OF P. E. I. PLUMBERS

Association Affairs in Flourishing Condition—

New Members Accepted—Outlook Thought to be

Such as to Justify Optimism



J. E. MATTE

Manager Vandry & Matte, Quebec, who was elected president of the newly formed Quebec Society, Domestic Sanitary & Heating Engineers just prior to the convention of the Canadian Society in Quebec city. Mr. Matte has the honor of being the first president of this organization which is expected to accomplish much in improving sanitary conditions in that province.

the necessity of installing modern sanitary conveniences in all buildings.

It has been well established that the progress of sanitary engineering is largely responsible for the present day public health campaigns. Sanitation is one of the most important problems being faced by the province of Quebec. A large percentage of the buildings in the city of Quebec for instance, were built long before the days of modern plumbing and need renovating in accordance with the demands of modern sanitary practice.



J. F. MURNAGHAN

elected President of the Prince Edward Island Association of Sanitary and Heating Engineers at the recent convention held in Charlottetown, P. E. I.

Owen Sound, Ont.—Two new sanitary sewers were put in during the spring and most of the residents on the streets are taking advantage of the improved service afforded them by having modern plumbing fixtures installed.

C HARLOTTETOWN, P. E. I.—The annual meeting the provincial association of sanitary and heating engineers has been concluded after a very successful and enthusiastic gathering. The following firms were represented: Bruce Stewart & Co.; Stanley, Shaw & Peardon, F. H. Trainor, James McEachern, Higgins & McLean, Harold Henry, Currie & Murnaghan, of Charlottetown, Morrison & McDonald and Thos. Johnston Co., of Summerside, P. E. I.

The election of officers for the ensuing year returned the following: President, J. F. Murnaghan, Charlottetown; Vice President, Arthur Johnston, Summerside; Sec. Treasurer, F. H. Trainor, Charlottetown.

The application of two new firms for membership were read and accepted.

In reviewing the work of the past year it was evident that the association affairs were in a flourishing condition and the outlook was thought to be such as to warrant optimism. The question of having a representative at the convention of the Canadian Society D. S. & H. E. was also taken up.

Business To-day For T



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Aggressive selling methods
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Improving Quebec Sanitary Conditions

Pioneering Work of Quebec Master Plumbers in Organizing Association— Sanitary By-law for Quebec City as Result of Activity of Master Plumber —Local Merchants in Other Trades Could Buy Plumbing Fixtures at Same Price as the Plumber

Report of E. G. Brousseau, Quebec Provincial Vice-President, before 24th Annual Convention Canadian Society D. S. & H. E. in Quebec.

THE Provincial Vice-President of Quebec extends to you all, a hearty welcome to our capital, his only ambition is that the statement which appears in the circular letter signed by both President Mahoney and Secretary Frankland, that this convention should be the biggest and best in the history of this Canadian Society, should come true. If we should once in a while remember that we are responsible for this society of business men, then get together and put the shoulder to the wheel to start it in renewed motion every time we meet with difficulties. Then, and only then, would we be true to our calling.

Aiming at such a desirable state of affairs I submit that the programme of any convention always be made accordingly, then perhaps one would know much more in advance what questions are to come before the chair, subjects could then be discussed with a greater knowledge and more intelligently; and this Association would be recognized as a real live one, as of course, it should be. This is only my opinion and I shall be required to be convinced that I am wrong.

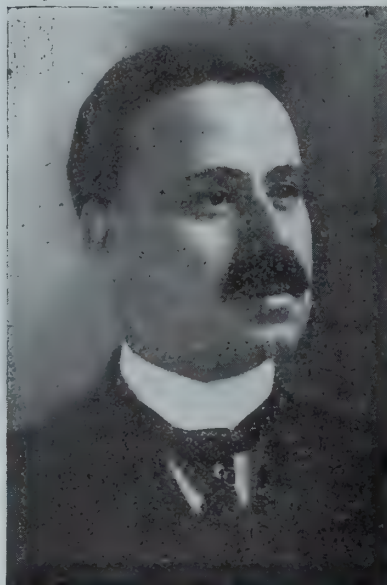
You may say this is not a Provincial report. I admit it, but, as I read somewhere, that I was a member of the executive and not having had within the whole year the opportunity to attend to the duties pertaining to this position, I thought I should not escape this first opportunity to fulfill my obligations. May I make a suggestion for the welfare of this Association before I report as Provincial Vice-President? My suggestion is, that any member who will be elected on the next executive, should not accept if he cannot decide in advance to sacrifice a little of his own business time in order to do the work required of his office.

Now, what about the Province of Quebec? When this report will be read maybe Quebec will have its own Provincial Association, but, at the time I write, it is not yet organized. However, I hope that if the new members stick to their promise, Montreal, Quebec, Three Rivers, St. Hyacinthe, Sherbrooke and Levis will have joined together to form that so long expected "Quebec Provincial Association."

How did we proceed in that direction, I should rather say how did I proceed because I don't want to incriminate anyone else in connection with this Provincial organization, as it would not be fair to themselves owing to the fact that so little really has been done.

Like my predecessors, I wrote several letters to a prominent member of the craft in each city, accompanied

with printed report of the last convention together with booklets of my lectures on Sanitation. But unfortunately I did not receive any replies. So I discovered this was not the right way to get at them. Then I tried to reach them by the medium of some friend journalists. Their interviews to leave the city at the time, I was not discouraged because I knew while this was the easiest way to reach them it was not the best. Finally I decided to meet them and try to stamp on their minds the necessity for them to belong to such a body as ours. However, as it was absolutely impossible



E. G. BROUSSEAU

Quebec, elected chairman of the Sanitary Committee, Canadian Society D. S. & H. E. for 1921-22. Mr. Brousseau holds the same position in the new Quebec society.

to leave the city at the time I was fortunate enough to have an able man by me, our Secretary, Mr. U. F. Drouin, who was despatched to see them. He returned with what I could call a success, having six applications from Three Rivers, three from St. Hyacinthe and four from Sherbrooke; also the promise that every one of these cities would be represented by at least two delegates.

Fixtures Furnished by Builders

With reference to the City of Quebec only two questions of vital interest deserve to be mentioned in this report, that is: Lack of protection of the craft by the wholesalers and manufacturers, and lack of efficient Sanitary

By-laws. Referring to the former, it is my intention to deal with this matter as soon as I can get the local boys interested enough in this matter to meet and discuss the subject to a finish, which I hope will come soon as it is known all over this city that, any merchant, no matter if he is a dry goods dealer or grocer, can buy at the same price from the wholesaler as the plumber, providing he will say that he can get it from any other dealer at plumber's prices. He does not need to prove it, his statement is sufficient. This is very detrimental to the plumber and it also explains why in so many instances the owner of a building in Quebec calls for tenders with the reserve that he will furnish the fixtures.

Not only the dealers of Quebec are to blame in this direction, some of the outsiders are as bad, if not worse, and in their fight to get the orders for large contracts for public buildings, they go over the head of the plumber and sell goods direct to the owners, not only at the price the plumber is entitled to, but in some instances for 25 per cent. less.

As I understand it, the Extension Bureau was not established and supported by wholesalers and manufacturers for that purpose. I am glad to say, however, that the majority of the jobbers and manufacturers protect the plumbers and these firms should get our business.

Now for the second point, namely, Sanitary Laws.

Sanitary Laws

Quebec City will soon be governed like a great number of other cities, by good and practical Sanitary By-laws. I will try to give you just a summary of what has been done to convince the people of Quebec and our civic body of the necessity for such by-laws, also how we succeeded in obtaining the good results we have facing us to-day.

The idea came to me ten years ago when I started to advocate it whenever I had the opportunity to do so, until five years later when a few directors of the Quebec Builders' Exchange, who were general contractors resolved we should study the question and name a committee for that purpose, this committee met but two or three times, and went as it came, noiseless. I kept quiet on that question for over two years, being somewhat discouraged until a committee known as "The Civic Progress Committee" was founded by one of our most respected citizens, the late Eug. Jurien. This committee was composed of two representatives of every association of Quebec and I was one of the representatives of the Quebec Builders on that body.

(continued on page 46.)

Problems of the Heating Engineer

Heating Engineers Should Be Qualified by Examinations and Should be Able to Give Advice to Clients on Best Systems—Vapor Heating Flexible and Economical—Means for Protecting the Public

Report of J. C. Huot, Chairman Heating Committee to 24th Annual Convention Canadian Society D. S. & H. E. in Quebec City.

Being chairman for the past year of your committee on Heating subjects, and having given some considerable time and thought to this subject, I feel I should tell you something of my conclusions and offer a few joints for your discussion at this meeting, with the hope that we may all learn something from each other, and from a free discussion of the subject that will enable us better to cope with the problem the Heating Engineer is constantly confronted with.

If I were to attempt to write a paper on Heating in all its different forms, hot water, both tank and forced circulation, steam, high and low pressure, exhaust, one and two pipe systems, vapor, warm air, blower, indirect and ventilation the whole time of all this meeting would not be sufficient to scarcely touch the subject, so large a one is it.

I will content myself, therefore, with making a few observations about the hot water and steam system of heating, as met with in our ordinary daily practise, and offer a few questions for discussion, and I feel sure you will all have had experiences that will enable you to add something to our general knowledge of these subjects.

During the past twenty-five or thirty years, hot water as a method of heating has been used, almost to the exclusion of every other, in all kinds of buildings, whatever their size or whatever purpose they are used for.

Do you think that this practise of heating all kinds of buildings indiscriminately with hot water has been a wise one?

Has the march of progress stood still in the science of heating, or have we been keeping pace with modern thought and abreast of the times?

Is there any co-relation between coal consumption and the type of heating apparatus selected for any particular building?

Should we, as Heating Engineers, give our clients any heating apparatus they ask for, or should we not rather try and educate them to appreciate newer and better methods, if there are any, and explain to them why?

These few questions may form a basis for your discussion, and I am not offering them without having formed certain conclusions of my own, which I purpose to set forth as briefly as possible.

Educate People on Heating Facilities

Heating Engineers, I believe, have at the present time, more than at any previous time, and particularly in this province, a wonderful opportunity to educate the people to understand and appreciate modern heating methods, to guide their choice so that they may decide on the particular system best suited for their purpose, and the one that will be the most economical on fuel.

Personally, concerning heating by hot water, it is my opinion that the open tank gravity system, as commonly used in our flats and small dwellings, is the best and most economical yet devised, always provided the system has been properly designed and balanced. That the boiler or heater is sufficiently large to handle the radiation and the radiators large enough to properly warm the house in which they are placed.

This is where the competent Heating Engineer comes in on work of this kind.

If laid out by the amateur or rule of thumb workmen, some rooms may not have sufficient radiation, with the result that to try and bring them to the proper temperature, other parts of the dwelling are overheated and much coal wasted and dissatisfaction caused.

I have also satisfied myself, (whether you agree with me or not) is what I would like to hear you discuss freely, that most large buildings, stores, warehouses, halls, churches, etc., would be heated better, the apparatus would not cost any more and a con-

community, enabling them to save thousands of tons of coal, that are now wasted, and with coal at present prices, this seems to me to be the golden opportunity of the real Heating Engineers.

Owners, architects and builders require, and in fact, invite knowledge and look to you for advice and there never has been a time when the Heating question requires more careful thought than to-day.

Vapor Heating Economical

My own experience, and I believe I may state that modern Heating Engineering experience has proved that Vapor Heating is a very flexible and economical system.

It is simply circulating steam or vapor at a very low pressure and heating the radiators with it in place of by circulating hot water, and it has these advantages over hot water for heating large buildings.

There is less water to heat—from one-sixth to one-tenth what there is in a Hot Water System.

It is quicker. In twenty minutes to half an hour you could circulate vapor in every radiator in a large building where with hot water it takes hours.

Any radiator may be shut off completely or any number of radiators without interfering with the rest of the system.

It is as silent in operation as Hot Water.

It is economical because there is less water to heat and because there is no waste, you only require to generate vapor enough to fill the system when the dampers are automatically shut.

You can get mild heat in moderate weather, and plenty of heat in cold weather.

I know of a Vapor Heating job in the coldest part of this Province containing nine hundred feet of hot water radiation and a No. 7 boiler, and you all know what the fuel consumption would have been.

Take Themselves More Seriously.

I believe, gentlemen, that the Heating Engineers should take themselves more seriously. They should endeavor to educate the public, the builders and the architects. They should examine each heating proposition that is brought to them by a client on its merits. Study the building, the chimney, the use to which the building is to be put, and advise the client what system is the best for him to use for his particular requirement. In other words be the physician of the Heating System and prescribe for the client not what he thinks he wants, but what you know he should have, and if a client comes to you with a heating proposition that you know will not be satisfactory to him and reflect no credit on you when finished, have nothing to do with it.



J. C. HUOT

Quebec, who was elected chairman of the Essay Committee, Canadian Society, D. S. & H. E., and who was also vice-president of the newly formed Quebec provincial society.

siderable saving of fuel would be effected, if heated by a modern system of Vapor Heating instead of Hot Water.

I am not making this statement without having what I consider very good arguments to substantiate it, and if I am correct, what an opportunity does this offer to the Heating Engineer of doing a real service to the

Problems of the Heating Engineer

By doing this you will be assisting to raise the standard of your profession and inspiring in the public a confidence in the Heating Engineer.

There is only one further observation I would like to offer for your discussion.

Protecting the Public

Do you not think the time has arrived when the public should be protected against the incompetent posing as Heating Engineers of any Tom, Dick and Harry who can screw a piece of pipe, who hangs out a shingle and calls himself a Heating Engineer, Architect, Lawyer, Doctor and others are protected by law after passing qualifying examinations. Why not Heating Engineers?

I respectfully offer for your consideration, whether the time is not now opportune to ask the Government to consider appointing a qualified Heating Engineer as an examiner and holding examinations say twice a year when applicants might be examined by written paper and orally as to their fitness for undertaking, designing and carrying out heating work. Each applicant passing the examination to be given a certificate stating the particular type of heating apparatus that he is qualified to design and erect.

J. C. Huot,
Chairman Heating Committee.

Need Universal Sanitation Standards

(continued from page 25)

Legislation as will safeguard their health.

Codification and Unification of Plumbing Laws and By-laws

The advances and improvements that are constantly taking place in Sanitary Heating and Ventilating equipment, calls for a codification and unification of all the laws dealing with this most important part of our national life. This fact comes home to us more forcibly every year. While it is true that the multiplicity of our legislative enactments make this extremely difficult, yet by co-operation and loyalty each to all and all to each, these may be overcome. We find a variety of interpretations of these laws as they are now, more or less due to the slackness in their administration and at times we find them being administered by an unsympathetic Department of Health, at times we find that Inspectors are employed who are ignorant of the most elementary rules of Sanitary Plumbing, having been engaged from purely personal or political reasons. It is, therefore, not surprising to find low standards of workmanship which are frequently a positive menace to the Public Health of the community.

Federal Legislation To Ensure a Minimum Standard

It becomes, therefore, more and more apparent that the cities and towns of the Dominion recognize the value and necessity of by-laws for the control of Sanitary Plumbing, Heating

and Ventilation in their own localities and are doing their best to meet the situation by local regulations, but these are not sufficient. It is necessary and essential that the Federal Government should pass legislation requiring a compliance with a Minimum Standard of Sanitation, while leaving the different Provinces and cities free to enlarge upon these laws by any special regulations, laws and by-laws they may consider necessary to meet their own climatic conditions, and requirements.

Ontario

The total estimated cost of work undertaken in the Province of Ontario during the past year in the extension of waterworks and sewerage systems is represented by the sum of \$7,873,518.60. This is an increase over any previous year in the history of the Province. The smaller municipalities undertaking the installation of waterworks continue to increase in number. There are also a great many sewers being laid in the smaller municipalities accompanying the street improvements it being good policy to lay sewers before the road surface is permanently established. As soon as these sewers have been laid, and an outlet provided to take care of the storm water there comes a general demand for access to them for the purpose of disposing of sanitary and domestic wastes. In several municipalities the introduction of a sewerage system has brought to their mind the need of plumbing regulations.

The sanitary and domestic engineering trades have of late years, and especially since so much research has been carried on by the different associations for the advancement of the interest of the trade, become a well defined calling, closely allied with the other professions having to do with Applied Science. The more instruction we are able to develop in the Technical Schools, and through apprenticeship courses the more firmly established the essentials of the Trade will become.

In regard to the regulations, governing the installation of sanitary conveniences, of the Province of Ontario under the Bill No. 64-1916 which is shown in the 36th annual report of the Provincial Board of Health.

These regulations should be enforced to work in conjunction with the Ontario Housing Committee, as the outside Municipalities are in want of said Regulations. We were in hope that at the sitting of this last Sessions of the House of Parliament that the above regulations would have come into force in the face of all the opposition that has been brought to bear on same.

Trusting that this convention will see its way to adopt said regulations for the Dominion.

We have a few copies for your approval.

London, Ont.—Prof. A. F. Dallyn, of the Provincial Board of Health, rather effectively shot to pieces allegations that the new Ontario Plumbing by-laws are designed to particularly benefit the trade, at a meeting he held here last week with the local Board of Health. He declared emphatically that the new Ontario regulations are based on the best plumbing practice over

a period of sixty years. They are the result, he pointed out, not of one man's experience, nor of one district's experience, but of what has been learned by the best men in the business operating under all sorts of conditions and having all kinds of problems to solve.

Dr. O. I. Cunningham, a dentist, is chairman of the Board of Health in London and criticized the by-laws because they had been drawn up largely upon information from the sanitary and heating engineers.

"Where else would you expect to get the information required?" asked Professor Dallyn pointedly, and he went on to state that the plumber's guild in Toronto is one of the best organized self-instructing organizations in the Dominion. They are thoroughly abreast of the times, he declared, and carry on a campaign of education among their members that makes constant efficiency. Toronto, he said, has one of the best sets of plumbing regulations to be found, not in Canada, but in America.

Prof. Dallyn was in conference with the local board over points of difference in connection with back venting. Chairman Cunningham took the stand that back venting is an unnecessary and useless expense. He gave it as his opinion that plumbing regulations should be under the jurisdiction of the building inspectors rather than the boards of health.

The provincial officer pointed out that even if this were effective any regulations proposed would still have to meet with the approval of the Provincial Board of Health. It did not matter, he said, what department did the work. In connection with back venting he stated that a clause had been inserted in the regulations by which exceptions could be made. The London authorities had completely eliminated clauses in their regulations in reference to back venting and he made it plain that the provincial Board could not agree to this. The additional cost of installing back vents was equalised, he said, by the fact that repairs could be carried out at considerably less expense than on non-vented systems.

Plumbing Control

The control of plumbing in the Dominion may be said to consist of four parts—licensing, regulation, permits and inspection. In all the cities and in many towns which have adopted plumbing regulations master plumbers and journeymen must be examined and licensed in order to establish their competency to do plumbing work. This requirement is in line with compulsory education, and is intended to be a guarantee against ignorance and lack of skill. Regulations consist of setting up minimum requirements for the design, standard of materials, and workmanship in Plumbing. These regulations differ very greatly in different parts of the Dominion and these differences are sources of great annoyance to plumbers and added expense to householders. In some towns there are no regulations whatever, and in these towns anybody can work at the business of plumbing. Permits to do specific jobs where regulations are in

(continued on page 48)

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

OBITUARY

Summerside, P.E.I.—After a long and trying illness, Fred W. Johnston, youngest son of Mr. and Mrs. Thos. Johnson, passed away at the home of his parents. Deceased was one of Summerside's most popular young men. After leaving school he entered the employ of Thos. Johnston Ltd., and there, in his chosen career, as plumber and electrician, made good.

NOT SANCTIONED BY BOARD OF HEALTH

Hanover, Ont.—Dr. John W. S. McCullough, Chief Officer of Health for Ontario, sent Town Clerk Taylor the following:

"I have the honor to enclose herewith approval for your By-law No. 302 re improvements and extensions to the waterworks system, including a filtration plant. This approval is granted on the understanding that all drainage above the waterworks will be intercepted and carried below the dam. Your Engineer has advised this Board that the town has considered putting in septic tanks, or other works, and continuing the drainage. This solution of the difficulty does not meet with the Board's sanction, and if the waterworks is to be located as agreed upon the sewage must be intercepted."

WHERE PLUMBING COSTS ARE HIGHER THAN 10 PER CENT OF VALUE OF HOUSE

Sanitary conveniences to cost \$314 for a house assessed at \$575 as a local improvement was one of the recommendations of the Toronto Board of Health that caused some comment at the controllers' meeting. The owner has five years to pay for them. In another case the conveniences cost \$320 and the property assessment is \$400. The recommendations were adopted.

WESTERN PLUMBERS STRIKE

Regina—Concerted action by journeymen plumbers in Regina, Moose Jaw and Saskatoon has resulted in a plumbers' strike in the three cities. The men want \$1 an hour, while the master plumbers offer 90 cents. Employers claim they are willing to reduce the charge to the public from \$1.45 to \$1.25 an hour if the men will accept the lower rate.

BUSINESS CHANGES

New Hamburg, Ont.—Geo. Steiner, plumbing and tinsmithing has been succeeded by Wm. Heimbecker.



J. L. LETARTE

elected Secretary of the newly formed Quebec Society Domestic Sanitary and Heating Engineers.

SOON MANUFACTURE PLUMBING SUPPLIES

The Grinnell Co., Dundas St. Toronto advised that they expect to be manufacturing their own plumbers' and Steamfitters' supplies at this plant within a month. At the present time this firm is handling other lines to the trade.

MONCTON PLUMBERS' STRIKE

Moncton, N.B.—Journeymen plumbers and pipe fitters are out on strike after their demand for 85 cents an hour was refused, the master plumbers offering them 65 cents. About a month ago the men affected went out on the same complaint, but a temporary agreement for the month was then made, which agreement has expired. In the vicinity of thirty men, it is pointed out are affected by the strike.

CONTRACTS AWARDED

Newmarket, Ont., S. T. Worthington of Toronto, being the lowest tenderer for three miles of sewers in the town was awarded the contract by the Town Council at a special meeting. Mr. Worthington's tender was about \$30,000.

Orillia, Ont.—The Committee on Sewers opened the tenders for the sewer on Mississauga street, from O'Brien to McKenzie streets. Five tenders were received, the lowest being that of Curran and Clement who offered to lay the 10-inch main sewer for \$2.25; the 6-inch connections for \$1.27 with \$80 for manholes. They were awarded the contract. The total cost will be about \$7,300. The work is to be completed in six weeks. The figures were considerably lower than those for the Coldwater road sewer, which has just been completed.

Courtenay, B.C.—At a special meeting of the Courtenay City Council the tender of the E. J. Ryan Contracting company of Vancouver was accepted to put in a water supply for \$73,700 with 10 per cent added for contingencies which brings the total amount to be found to \$80,700.

DURO PUMP CO. OFFICIALS ADDRESS CONVENTION

C. A. Kuebler and H. I. Field, of the Duro Pump Mfg. Co., addressed the delegates at the convention for a few minutes at the close of E. G. Smith's address on advertising. They invited the delegates to see the pump in action displayed at the Chateau Frontenac and answered several questions from the audience regarding the working of their pumps.

WELLAND PLUMBERS BACK

Welland, Ont.—The plumbers' strike is ended and the men have returned to work at 80 cents an hour. The men went out when it was announced that a cut of ten cents would be put into effect. The new agreement will be effective till August.

INCORPORATIONS

Chamberlain Desolve Co., Ltd., has been incorporation with capital of \$40,000; head office, Toronto, Ont.

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AN EXECUTIVE BODY

THE suggestion made by Western members at the recent convention of the Canadian Society D. S. & H. E., to the effect that the Canadian Society should be an executive body only and that inter-provincial associations should look after local affairs, is one that requires some consideration. It has always been apparent at the conventions of this society that it was difficult to secure adequate representation from the distant parts of the country, and for a body which acts in the capacity which this society has done in the past, this is obviously a handicap. Frequently recommendations have been practically decided upon by the members present when it became quite obvious that such would not be applicable to the distant parts not represented. It is evident that local bodies can best make recommendations regarding local affairs, but a national organization is needed in order to give the necessary backing to recommendations of a national character. The question is worth much consideration as results will be attained only in proportion to the efficacy of the organization which makes the recommendations.

PROGRESS BEING MADE

JUDGING by the proceedings of the conventions of sanitary and heating engineers, as these gatherings are held from year to year, definite progress is being made toward fulfilling the long desired attainment when the operators in this industry will have the status which they deserve. This year's convention of the Canadian Society D. S. & H. E. in Quebec city was notable for the amount of discussion which centred around national problems and the recommendations forthcoming. This indication that the trade in their conventions have risen above the

petty matters which for too long dominated all such gatherings, is a real indication of progress.

Master plumbers of Montreal were called into conference in connection with the framing of the city's plumbing by-laws which are looked upon as highly efficient. The chairman of the Legislative committee, a master plumber from Montreal, is now favoring the creation of uniform sanitary laws covering all conditions found throughout the province. The relations of employer and employee came in for much consideration and it is an indication that the trade have in mind the welfare of the coming generation of sanitary and heating engineers that unanimous support is given the scheme of securing provincial aid in establishing technical courses. This branch of work conducted in Toronto for some time past has been valuable and its influence should be extended.

Reports of the better organization of operators in Western Canada provide a hopeful outlook for developments in that section of the country. It is notable that already the co-operation of master plumbers has been sought in the West in the framing of plumbing by-laws. Some little disappointment has been caused over the failure of the Western members to secure a ruling that plumbing and heating contracts should be let separate from the general contract, but a new plan is now being advocated in its stead, namely that when submitting his tender the general contractor must state who his sub-contractor is to be. Obviously this plan is to put a stop to the peddling of the sub-contractor's price after the job has been let. Another important provision is that when the general contractor submits his estimate for payment he state the amount due on the sub-contract for plumbing and heating, and the payment to be made direct to the plumbing and heating contractor. This would insure the sub-contractor in getting payment when due.

BRIEFS

The adjustment of the sink level to suit the height of the housewife is a suggestion recently made. The idea may have some merit providing plumbing fixtures were easily adjustable without disturbing drain pipes, etc., but in the great majority of installations where a house is occupied by a family for only a limited time the idea would cause more confusion than the adoption of a standard height. "Made to measure" plumbing is not highly popular as yet.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

REDUCTIONS continue to be the feature of the current market quotations. Among the declines noted are copper and brass tubing and sheets, a revision in discount to a lower price basis on one line of valves, a 10 per cent. reduction in standard closet outfits, and a lower range on cotton waste prices, both white and colored. Other lines reduced are faucets and wrenches, while scrap metal prices show slight declines, and a market reaction has been reflected in ingot metal quotations.

MONTREAL

MONTREAL, June 13.—Changes in market conditions, with variations in prices, feature the current quotations on plumbing supplies. A seasonable improvement is reported in the demand for conductor pipe and eavestrough, and corrugated sheet prices are unchanged. Soil pipe and fittings are moving slowly for this season of the year, and these products, together with radiators, closets and enamelled ware, are dependent upon an increase in building activity. Range boiler quotations are still unsettled, but trimo wrench prices are reduced. Sheet quotations are nominally unchanged, although where stocks are heavier some slightly better figures have been quoted in an effort to obtain business in fairly large quantities. The tone in ingot metals is easier, and some reductions have been recorded.

Trimo Wrenches Reduced

Montreal.

A slight reduction has been made in quotations on trimo wrenches, these now selling at 37½ per cent of list. Former discount was 35 per cent.

Pipe Quotations Hold

Montreal.

List No. 51 continues the selling basis of wrought iron and steel piping. While a number of new lists have come into effect since the beginning of the year, each with reduced prices over former levels, the present selling basis has been fairly well maintained.

Lead Product Demand Fair

Montreal.

The market tendency of all lead products remains fairly firm, notwithstanding the recent weaker tone of pig lead on the primary markets. This metal in the ingot stage has been reported with a falling off during the last two weeks from the strength of previous quotations. However, this is not yet reflected in the finished products. With the demand fair, prices are unchanged as follows:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50

Note—Lead pipe is subject to a discount of 10 p.c.

Lead traps and bends	10 p.c. off
Lead wtol, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut out sheets to size, ¾c extra.	
Solder, guaranteed, lb.	29
Do., strictly, lb.	0 27
Do., commercial, lb.	0 24
Do., wiping, lb.	0 24¾
Do., wire, lb.	0 37½
Zinc, sheets, casks	0 13
Do., broken lots	0 13½

Boiler Tube Sales Small

Montreal.

There has been no further change in the prices of boiler tubes since the revision of three weeks ago. The movement has shown no improvement in the last two weeks, sales being small and of a sorting order. Following are quotations:

BOILER TUBES—Seamless Lapweld		
1 inch	26 00	25 00
1¼ inch	27 25	26 00
1½ inch	26 25	27 00
1¾ inch	29 75	27 00
2 inch	29 25	22 90
2¼ inch	33 00	26 00
2½ inch	44 75	28 00

With the exception of an increase in the price of linseed oil, other products are maintained at previous levels. An improved demand has been recorded in corrugated sheets, conductor pipe and eavestrough, and pipe fittings. The range boiler situation remains unsettled and a readjustment in prices is looked for. Dealers in enamelled ware, soil pipe, and radiators, are depending upon building operations to increase activity in these lines.

3 inch	49 25	35 00
3½ inch	63 50	40 75
4 inch	85 00	51 75

Prices On Pipe Fittings Remain Steady

Montreal.

Conditions with regard to pipe fittings are unchanged. Quotations on the many lines hold, while sales are small. It is significant that dealers are only buying to sort there stocks for actual requirements. Prices on the various kinds are the following:

Cast iron fittings	20 p.c.
Bushings, cast	30 p.c.
Do., malleable	30 p.c.
Flanges	27 p.c.
Plugs	22½ p.c.
Flange Unions	20 p.c.
Malleable Unions	40 p.c.
Dart Unions, black	29 p.c.
Do., galvanized	8 p.c.
Nipples, ½ to 4" close and short	40 p.c.
Do., long	50 p.c.
Do., 4½ to 8" close and short	30 p.c.
Do., long	40 p.c.
Couplings, 4" and under	20 p.c.
Do., 4½" and larger	Net list
Pound Goods—	Blk. Galv.
Class B	0 20 0 28
Class C	0 13 0 20
Add 10 p.c.	

Sheet Prices Nominal

Montreal.

The quotations on both black and galvanized sheets show no change, but are considered nominal. Wholesalers with stocks not nearly so heavy as in the earlier months, are endeavouring to keep them as low as possible and still take care of the demand. Therefore slightly better prices than those given below are quoted to obtain business in fair quantities from some quarters where stocks are heavier. Little change is reported in the outside markets where the demand is

still very light. Following are quotations with a range:

PLATES—

10 gauge	5 25	6 25
12 gauge	5 30	6 30
14 gauge	5 45	6 45
16 gauge	5 55	6 55

BLACK SHEETS—

14 gauge	5 45	6 45
16 gauge	5 55	6 55
18-20 gauge	6 15	7 15
22-24 gauge	6 25	7 25
26 gauge	6 35	7 35
28 gauge	6 50	7 50

Sheets 36 in. in. wide, 10c per 100 lbs. extra.

GALVANIZED SHEETS—**U.S. Standard—**

10½ oz.	8 75	9 75
28 gauge	8 25	9 25
26 gauge	8 00	9 00
22 and 24 gauge ...	7 85	8 85
20 gauge	7 65	8 65
18 gauge	7 65	8 65
16 gauge	7 50	8 50

Queen's Fleur-

English Standard—	Head	de-lis
28 gauge	10 00	9 25
26 gauge	9 75	9 00
24 gauge	8 15	8 60
22 gauge	8 80	8 15
18 and 20 gauge ...	8 10	8 00

NOTE—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Enamelled Ware Inactive**Montreal.**

Sales in the different lines of enamelled ware have shown little improvement, if any, during recent weeks. Building operations, on which these lines are very much dependent especially this season, have not opened up as much as jobbers looked for, and until an improvement is reached along these lines, sales of enamelled ware are expected to show very little more activity. Quotations are remaining at 10 per cent off net prices given below.

Sinks, roll rim, 18 x 30 in.	18 40
Sinks, flat rim— 1 only 2 only 3 only	
16 x 24	\$ 6 00 \$ 5 92 \$ 5 84
13 x 30	6 96 6 88 6 80
20 x 30	7 92 7 84 7 76

Bath tubs, roll rim, 4, 4½, 5 feet	
24 to 30 in. wide.....	41 12
Bath tubs, 5½ feet	45 68

Lavatories—

17x19" Apron F139 or P4045..	12 24
18x24" Apron F154 or P3845	
or P3847.....	18 82
18x21" Apron F169 or P4205..	14 08
17x19" Roll Rim, F241 or P4345	10 08
Less 10 p.c.	

Radiator Discount Holds**Montreal.**

No further change is recorded in prices on boilers and radiation since the decline of two weeks ago, and following are the lists and discounts:

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26;	
--	--

22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53 per cent for hot water and 54 per cent. for steam

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50 per cent.

Boilers—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 55 per cent off list.

Square or sectional hot water or steam boilers, 15-in., 5 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 5 per cent of list.

Square or sectional steam boilers, 19-in. to 36-in., 5 per cent. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 15 per cent. off. Ontario Government trimmings, 10 per cent.

All prices f.o.b. Toronto, Montreal Guelph, Hamilton, St. Catharines or Brantford.

Eavetrough Sells Well**Montreal.**

Eavetrough and conductor pipe continues to sell briskly with no change in prices. Following are the present quotations:

EAVETROUGH—**O.G. Square Bood—**

Per 100 ft.	Per 100 ft.
8 in....15.90	15 inch....28.80
10 in....17.70	18 inch....36.80
12 in....21.20	

O.G. Round, and Half Round—

8 in....16.90	15 inch....29.80
10 in....18.70	18 inch....37.80
12 in....22.20	

Discount 60 per cent. off list.

CONDUCTOR PIPE—

Per 100 ft.
2 in.... 18.40
3 in.... 22.30
4 in.... 29.60
5 in.... 40.00
6 in.... 49.00

Discount 60 p.c. off list.

CONDUCTOR ELBOWS—

2 inch, list.....	5.25
3 inch, list.....	6.00
4 inch, list.....	10.50
5 inch, list.....	24.00
6 inch, list.....	29.00

Less 55 per cent.

Ingot Metal Tone Easier**Montreal.**

Quotations on most metals in the ingot markets are slightly lower, while the undertones are generally easier. The demand is now very limited, a slackening being noticed in the past week or ten days. Much depends on the coal strike in England, with regards future trend and activity, and an early settlement is hoped for in this direction.

TIN—Tin has eased appreciably in London and the market looks weak at the moment. An improvement is looked for as soon as the coal strike is over. Local price is fairly steady at 38 cents, owing to a scarcity of supplies.

COPPER—Owing to the severe decline in exchange, European buying has ceased, with the result that market is easier. Present prospects are for a dull market. Quotations are 18 cents for electro and 18 cents for casting.

LEAD—London has had a fairly sharp decline but recovering to some extent while the American market is also lower. The decline is not expected to continue but the demand is very limited at present. Local price is now 7 cents.

SPELTER—Spelter has had a sharp decline in London, and East St. Louis has also touched a new low point of \$4.50. The market is weak at present and current prices are considered very low. Prices are from 7¼ to 8 cents.

ANTIMONY—This metal is being offered for shipment from the East at a very low basis, and there is no sign of improvement. Quotations are unchanged at 7½ cents for Chinese and 8½ cents for high grade English.

ALUMINUM—Quotations on this metal are held at 33 cents although it also shows signs of weakness and continues dull on the market.

Light Sales In Corrugated**Montreal.**

Sales of corrugated sheets continue light and mostly confined to the 28 gauge. Quotations remain unchanged since the revision of last month when the new list prices were issued. Following are the present ruling prices on all gauges:

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge.....	8.50
No. 26 gauge.....	9.25
No. 24 gauge.....	15.00
No. 22 gauge.....	16.00
No. 20 gauge.....	18.00
No. 18 gauge.....	24.00

Less 7½ per cent.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Boiler Quotations Unsettled**Montreal.**

Range boilers are still selling under the following list although it was expected by some wholesalers that a revised list would be issued this week raising the prices on practically all sizes. Prices continue unsettled with sales light, the 30 gallon boiler being practically the only size moving. Local quotations follow:

RANGE BOILERS—

Standard Ex. heavy	
30 gallon.....	8.75 11.25
35 gallon.....	11.25
40 gallon.....	13.50 16.00
52 gallon.....	20.00
66 gallon.....	28.00
82 gallon.....	35.00
100 gallon.....	45.00
120 gallon.....	54.00



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Waste Prices Steady**Montreal.**

Cotton wastes are selling on a steady market with no changes made in quotations which are as follows:

Waste	
Cream, Polishing.....	0 22
WHITE	
XXX.....	0 18½
XX.....	0 17½
X.....	0 16½
XLGR.....	0 16½
X Empire.....	0 15
X Press.....	0 13½
6X Special.....	0 12

Colored	
Fancy.....	0 15
Lion.....	0 13½
Popular.....	0 10½
Keen.....	0 09

Wool Packing	
Arrow.....	0 32
Axle.....	0 27
Anvil.....	0 22

Dominion Wipers	
Washed and Sterilized	
White Cotton.....	0 23
Colored Cotton.....	0 18

Above lines subject to trade discount for quantity.

Soil Pipe Sales Slow**Montreal.**

Soil pipe is moving slow for this season of the year, but as in the case of many plumbers' supplies building construction is still not as brisk as it might be thus holding back the scales of these pipes and fittings. No change has been made in the discounts which are as follows:

SOIL PIPE (medium and extra heavy)
2, 3, 15 per cent; 5 and 6-inch, 20 per cent discount.

4-inch, 25 per cent discount.
8 inch add 20 per cent to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.

8 inch, net.

Bar Iron And Steel**Montreal.**

Little change is to be reported in bar iron and steel. Sales are of a small order, with little improvement looked for among the jobbers during the summer months. Quotations on the different grades are holding at \$3.70 base.

Common bar iron, 100.....	3.70
Refined iron.....	5.20
Iron finish machinery steel....	3.75
Mild steel.....	3.70
Single reeled machinery steel..	5.75
Band steel.....	3.70
Spring steel.....	5.00
Sleighshoe steel.....	3.70
Tire steel.....	3.90
Toe caulk steel.....	4.60
Narrow tooth steel.....	3.85
Mining tooth steel per lb.....	0.23
Black Diamond tool and cast steel, per pound.....	0.23

NOTE—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles 50c per

100 lbs. extra.

Flats, iron and steel 3-16 and thinner 50 cents per 100 lbs. extra.

Closet Prices Unchanged**Montreal.**

There is no further change from the last report on closets. Prices are held as follows in some quarters, while a discount of 10 per cent is given by some wholesalers the same as on the other lines of enamelled ware. Following are the unchanged prices:

Closet, standard outfit.....	32 00
Do., with post hinge seat....	33 00
Do., white vitro, vitreous china or enameled iron, with wash down bowl and oak or mahogany post hinge seat.....	35 00

Do., add for reversible trap bowl	1 25
Do., add for syphon jet bowl..	7 00
Do., for ¾ in. valve on supply pipe.....	1 50
Do., deduct for supply pipe...	0 80
Do., deduct for floor flange..	0 60
Do., wash-down bowl less spud	11 50
Do., reversible trap bowl, less spud.....	12 75
Do., syphon jet bowl, less spud	19 07
Do., "Richelieu" bowl.....	10 50
Do., extra for spud.....	0 60
Do., oak, or oak-vitro tank, with fittings, less seat.....	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge.....	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat.....	19 00

TORONTO

TORONTO, June 13.—Several reductions are evident in current quotations on plumbing and steam-fitting supplies. Among the price changes noted is a 10 per cent. decline in standard closet outfits, also reduced quotations on copper and brass tubing and sheets, and a revision of the Emco valve discount on a lower price basis. Cotton wastes, both white and colored, have decreased from 1 to 2 cents on the various grades, and through a revision in discounts one line of faucet prices is now lower. Scrap metal prices show declines and a reaction is noted in ingot metal markets with some lower quotations.

The only price increase recorded is in linseed oil. The boiler tube market is dull, while the recent changes in radiator discounts still hold. Enamelled ware activity depends upon building operations, and a readjustment is looked for in range boiler quotations, the current nominal list being the result of recent price cutting. An easier market tone is noted in lead and zinc products. Pipe sales are reported irregular, but an improvement in demand is evident for pipe fittings, also on eavestrough and conductor pipe. The current demand for corrugated sheets has improved, and more sales in soil pipe are looked for at this season. Small orders are prevalent in bar iron and steel, and similar conditions govern sheets and plates. There is a firm tone in lead, with no price change.

Standard Closet Outfits**Reduced 10 Per Cent.****Toronto.**

Closet price reductions to the extent of approximately 10 per cent, are announced on standard outfit quotations. Conditions in this market are practically unchanged, and little new buying has been reported. Current demand has been light, and dealers report the price revisions as a step to stimulate activity as well as to settle the general market tone. Following are prevailing prices:

Closet, standard outfit oak.....	\$28.80
Do., with post hinge seat.....	29.70
Do., white, vitro, pussyfoot, vitreous china or enamel-iron with wash-down bowl and oak or mahogany post hinge seat.....	31.50
Do., add for reversible trap bowl.....	1.25
Do., add for syphon jet bowl..	7.00
Do., for ¾ in. valve on supply pipe.....	1.50
Do., deduct for supply pipe...	0.80
Do., deduct for floor flange..	0.60

Do., wash-down bowl less spud	11.50
Do., reversible trap bowl less spud.....	12.75
Do., syphon jet-bowl less spud	19.00
Do., "Richelieu" bowl.....	10.50
Do., extra for spud.....	0.80
Do., oak, oak-vitro or pussyfoot tank with fittings, less seat.....	16.50
Do., white, vitro, pussyfoot, vitreous china or enameled iron tank with fittings, flush elbow and supplies.....	18.50
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4.75
Do., add for bar hinge.....	0.40

Firm Tone in Lead**Toronto.**

The fluctuation on the primary lead market has not affected white lead in oil, and local quotations remain unchanged. A firm tone is still evident, and with linseed oil registering a further advance in price, the strength of white lead is expected to continue while these two raw materials maintain their present conditions, accord-

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Montreal and Toronto—From Head Office, Guelph, Ont.

ing to dealers reports. Corroders are stated to be busy keeping stocks parallel with the present demand, which is good, and no large surplus of supplies is evident at this time. Local prices on white lead in oil are: \$14.95 per 100 lbs. in ton lots, and \$15.30 per 100 lbs. in smaller quantities.

Enamelled Ware Activity Depends Upon Building

Toronto.

Very little improvement, if any, has been evident in enamelled ware buying, and the market on these products is still dependent for future activity upon seasonable building operations. Prices are maintained at former levels, and the current discounts recently announced is applied to the list as quoted below:

Enamelled Iron Baths, 3" roll rim 4 ft., 4 ft. 6 in 5 ft.	\$51.40
Do., 5½ feet.	57.10
All Steel Enamel Bath, 4, 4½ or 5 ft., net.	16.25
Do., dc., 5½ ft., net.	17 50
Lavatories—	
17x10" Apron F139 or P40445..	15 30
18x24" Apron F154, P3845 or P3847.	23 60
18x21" Apron F169 or P4205..	17 60
18x21" Roll Rim F197, F199 or P4655-6.	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim— 3 only 2 only 1 only	
16 x 24.	\$7 60 \$7 70 \$7 80
18 x 30.	8 50 8 60 8 70
20 x 30.	9 70 9 80 9 90
All above list except lines marked net. Discount 20-10 p.c. off these prices.	

Cotton Waste Reduced

Toronto.

Reductions have been announced in prices on both white and colored cotton waste. The extent of the decrease varies between 1 and 2 cents on the different grades. Demand is reported as fair, with the present market containing some signs of slight improvement. Following are the revised quotations:

WASTE—

	per lb.
Cream, polishing.	0 19½
White, cotton.	0 20
XXX	0 18½
XX	0 16½
X	0 15½
XC	0 14½
XXX extra	0 17
XX grade	0 16
XLCR	0 15
X empire.	0 14
X press.	0 13
Colored, cotton.	
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 10
Keen	0 09

No. 1.	0 13½
No. 7.	0 12½
No. 1A.	0 11½
No. 1B.	0 10½

Above lines subject to trade discount for quantity.

Linseed Oil Price Higher

Toronto.

Linseed oil prices are still on the upward trend, and another advance of 10 cents per gallon has been recorded. This additional increase brings the current price for raw to 97 cents per gallon, and \$1.00 for boiled, on 1 to 2 barrel lots. The prevailing demand is good, and there is reported to be a brisk movement of flax seed, with slightly higher quotations. Foreign oils are also on a higher level, and a decidedly firm market tone is evident.

Faucet Quotations Lower

Toronto.

A reduction has been announced in the price of Perfection faucets, and the discount on these products is quoted at 35 per cent off list.

Radiator Discounts Hold

Toronto.

The recent revisions in the discount on water, steam and wall radiators remain unchanged, and current prices are maintained at the quotations noted in the last issue of Sanitary Engineer. It is not yet apparent whether the price reductions will result in stimulating the sales of these products to any extent, as the present demand is reported far below normal. Building activity on a large scale is looked for to improve the market tone and generally tone up prevailing conditions. The following is the revised list:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4, and 5-column sizes, 53 p.c. for water and 54 p.c. for steam.

Discount on 1-column size, and 2, 3, and 4-column hospital sizes, 48 p.c. for water and 49 p.c. for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50 p.c.

Expect Improvement In Soil Pipe Demand

Toronto.

Current conditions on soil pipe and fittings are reported as below normal for this season of the year. A slight improvement in demand has been noted in some quarters, and dealers are looking for better activity as the season advances. No price changes have been recorded this week, and the pre-

vailing discount quotations follow:

2 and 3 inch, 10 p.c.
4 inch, 20 p.c.
5 and 6 inch, 15 p.c.
8 inch, add 5 p.c.

FITTINGS—

2 to 6 inch fittings, 40 p.c.
8 inch fittings, plus 5 p.c.

Readjustment Looked For On Boiler Prices

Toronto.

Some degree of unsettlement still prevails in the range boiler situation. Due to the recent price-cutting, a new list has been in effect; dealers hoping that the lower quotations would revive the market. A further price readjustment however, is looked for, manufacturers claiming that present levels are below actual value. Some jobbers also have maintained prices in advance of those generally quoted, being reluctant to sell at a distinct loss. Under these conditions, it is expected that a new list will be issued in the near future showing prices in advance of those given below, which quotes the average range at which boilers are selling locally:

Range Boilers—	Standard	Ex-heavy
30 gallon.	\$ 9 00	\$11 50
40 gallon.	13 80	16 50
52 gallon.	20 40	25 20
66 gallon.	28 80	34 80
82 gallon.	36 00	47 40
100 gallon.	45 60	56 40
120 gallon.	55 20	64 80
144 gallon.	78 00	93 00

Lead and Zinc Easier

Toronto.

The tone in lead products is now a little easier, due to the recent fluctuations on the primary markets. Current local quotations remain unchanged, and a firm demand continues. Whether the reaction in the price of ingot lead reflects the future strength of this market, or is just a temporary decline, is too early to ascertain. The tone of zinc is fair and easier. Following are prevailing prices:

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in. list, per lb.	0 14½
Lead pipe ds subject to discount of 10 p. c.	
Lead traps and bends.	10 p.c.
Lead sheets, 4 to 6 lbs. sq. ft. in rolls, lb.	0 09½
Cut sheets ½ c to ¾ c lb. extra and cut sheets to size 1c lb extra.	
Solder, wire, lb.	0 36½
Do., 40-60.	0 28½
Do., 50-50.	0 31
Do., strictly, lb.	0 26
Do., commercial, lb.	0 23
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 23
Zinc sheets, per lb.	0 16
Calking lead.	0 08



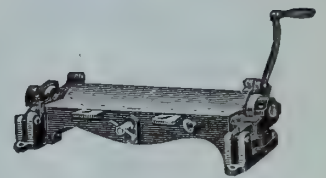
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Bending Rolls



Steel Brake



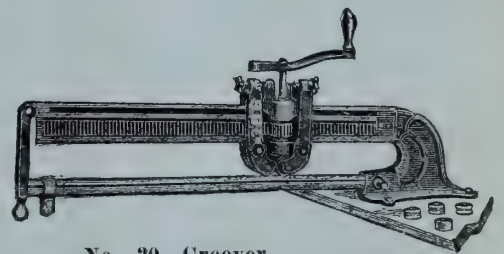
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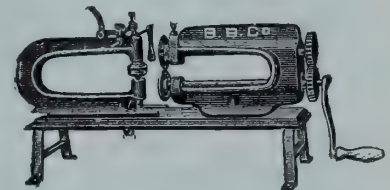


No. 30—Groover



Stove Pipe Folder

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Slightly Better Demand For Pipe Fittings

The volume of sales in pipe fittings is now reported to be more satisfactory and market conditions are returning to normal. Prices remain unchanged, and following are the current quotations:

Cast iron fittings.....	20 p.c.
Plugs, cast.....	27½ p.c.
Do., solid.....	10 p.c.
Do., countersunk.....	Net list
Bushing.....	30 p.c.
Unions, ¼ in. to 2 in.....	40 p.c.
Do., ¼ in., 2½ in. and 4 in.....	35 p.c.
Dart-Unions, blk., ¼ in. to 2 in.....	29 p.c.
12 inch.....	8.78
Do., ¼ in., 2½ in. to 4 in.....	14 p.c.
Do., ¼ in., 2½ in. to 4 in.....	14 p.c.
Do., galvanized add to black	30 p.c.
Wrought Nipples—	
Close and short, 4" and under	40 p.c.
Do., 4½" and larger.....	30 p.c.
Long, 4" and under.....	50 p.c.
Do., 4½" and larger.....	40 p.c.
Running thread 4" and under	20 p.c.
Do., 4½" and larger.....	40 p.c.
Wrought couplings—	
Standard, 4" and under.....	20 p.c.
Do., 4½" and larger.....	Net
MALLEABLE FITTINGS	
Class A.....	0 60 0 75
Class B.....	0 24 0 34
Class C.....	0 15 0 24

Irregular Pipe Sales

Toronto.

Prices on wrought iron and steel pipe are being maintained at List No. 51. Sales are small and of an irregular nature. A constant sorting of stocks is apparent, with dealers ordering very sparingly. The market in these products, however, is still dull, and very little improvement has been noted.

Price List No. 51 April 25th, 1921
Standard Butt Weld Pipe S-C

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
½ in. ...	\$ 6 50	\$ 8 50	\$	\$
¾ in. ...	4 71	6 81	5 91	8 01
1 in. ...	4 71	6 81	5 91	8 01
1½ in. ...	6 16	7 78	7 95	9 48
2 in. ...	7 42	9 49	9 95	12 02
2½ in. ...	10 63	13 69	14 37	17 43
3 in. ...	14 38	18 52	19 44	23 58
3½ in. ...	17 19	22 14	23 24	28 19
4 in. ...	23 13	29 79	31 27	37 93
4½ in. ...	36 56	47 09		
5 in. ...	47 81	61 58		
6 in. ...	63 02	79 58		
8 in. ...	74 67	94 29		

Standard Lap Weld Pipe S-C

Per 100 feet.

Size	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in. ...	\$26 83	\$33 49	\$34 97	\$41 63
2½ in. ...	40 07	50 60	52 94	63 47
3 in. ...	52 40	66 17	69 23	83 00
3½ in. ...	63 94	80 50	84 18	100 74
4 in. ...	75 76	95 38	99 74	119 36
4½ in. ...	85 73	108 59	1 16	1 39
5 in. ...	99 90	126 54	1 35	1 62
6 in. ...	1 30	1 64	1 76	2 10
7 in. ...	1 75	2 23	2 32	2 75
8 in. ...	1 84	2 34	2 44	2 89
8½ in. ...	2 12	2 69	2 81	3 33
9 in. ...	2 54	3 23	3 36	3 98

Sheet Demand Improves Toronto.

The demand for corrugated sheets has improved and dealers report more satisfactory conditions now prevailing. Activity is evident in numerous small orders, seasonable business being anticipated in many quarters. Prices are unchanged and the present list follows:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge.....	8 50
No. 26 gauge.....	9 25
No. 24 gauge.....	13 00
No. 22 gauge.....	16 00
No. 20 gauge.....	18 00
No. 18 gauge.....	24 00
Less 7½ p.c.	

Reduced Quotations On Copper And Brass

Toronto.

The sudden reaction evident in the primary metal markets, has resulted in a decrease in the price of copper and brass. A 2-cent reduction has been announced on copper and brass tubing, while the base price of sheets is also lower 2 cents per lb. The local market in these products has been dull, and due to the revisions, an improved demand is looked for. The new quotations follow:

BRASS—	
Sheets, base, per lb.....	\$0 27
Rods, base, per pound.....	0 27
Tubing, base, per lb.....	0 34
COPPER—	
Rods, base, per pound.....	0 32
Soft sheets, plain, 16-oz. and heavier, lb.....	0 32
Do., plain tinned, 16-oz. and heavier, lb.....	0 40
Do., polished and tinned 16-oz. and heavier, lb.....	0 45
Tubing.....	0 37

Valve Discount Revised

Toronto.

A revision in the discounts bringing prices on Emco valves to a lower level, is the only change recorded on compression brass goods this week. The new discount on Emco J. D. and check valves is 20 per cent, the previous quotation being only 10 p.c. The reduction is in line with other revisions recently announced, and improved activity in sales of these products is looked for in the near future. The following quotations prevail locally:

Compression work, standard..	37 p.c.
Fuller work, standard.....	30 p.c.
Bath cocks, compression.....	29 p.c.
Do., Fuller.....	25 p.c.
Flatway stop and waste cocks, standard.....	40 p.c.
Roundway stop and waste cocks, standard.....	34 p.c.
Brass steam cocks, standard..	10 p.c.
Globe, angle and check valves, standard.....	5 p.c.
J. M. T.....	20 p.c.
J.M.T. C.....	25 p.c.
J.M.T. Gate Valves.....	15 p.c.

Radiator valves, standard....	23 p.c.
Do., removable discs.....	38 p.c.
Emco J. D. Valves.....	20 p.c.
Emco Check Valves.....	20 p.c.
Webber Gate Valves.....	15 p.c.
Basin Cocks—	
No. 1 and 1 Puller pattern..	30 p.c.
Quick opening, No. 3633....	37 p.c.

Demand Is Small For Sheets And Plates

Toronto.

While local prices of sheets and plates are being well maintained, yet it is intimated that the lack of a strong market keeps quotations at their present level. In the southern steel markets, some unsettlement over sheet prices is evident, a revision on a downward grade being looked for in some quarters. No declines generally are expected however, until an improvement in demand is shown. No changes have been noted in local conditions, the trend of orders being of the small variety. Nominal quotations remain as follows:

BLACK SHEETS		
14 gauge.....	5 10	6 10
16 gauge.....	5 20	6 20
18-20 gauge.....	5 75	6 75
22-24 gauge.....	5 80	6 80
26 gauge.....	5 85	6 85
28 gauge.....	6 00	7 00
PLATES		
10 gauge plate.....	5 00	6 00
12 gauge.....	5 05	6 05
14 gauge.....	5 10	6 10
16 gauge.....	5 20	6 20

GALVANIZED SHEETS		
Premier and Apollo		
10½ oz.....	8 40	9 40
U.S. 28 gauge.....	8 00	9 00
U.S. 26 gauge.....	7 75	8 75
22 and 24 gauge.....	7 35	8 75
18 and 20 gauge.....	7 60	8 60
16 gauge.....	7 45	8 45
12 and 14 gauge.....	7 40	8 40

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped cut in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for widths of this size, but in some cases there is a further extra for 4 ft. widths on all gauges.

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

Boiler Tube Market Dull

Toronto.

A dull tone prevails in the boiler tube markets, and present conditions are reported as slightly unsettled. Some price revisions have been looked for in certain quarters, but current quotations remain unchanged. The demand is light, and doubt whether price reductions would stimulate market activity is quoted as the reason for holding to the present list, which fol-

HEAT YOUR HOME RIGHT-SAVE MONEY!

Get A FREE Estimate and Learn How Little This Fine Furnace Costs

You're making money trying to heat only two or three rooms with a small furnace and have the whole house cold and warm if you install a HECLA Pipeless Furnace. For the HECLA Pipeless has a family-sized firepot that burns one ton of coal in a day. It's only one register, and it makes the whole house warm as a bath. There's no need for any other pipes, absolutely without qualification. And the modern heating system gives you a coal bill without the old-fashioned space heating pipes.

Costs Less to Install—Less to Run. Guaranteed to Heat Any House Up to Fifteen Rooms.

Learn all about the HECLA Pipeless Furnace, its features, its advantages, its economy, its safety, its simplicity, its beauty, its durability, its modernity, its efficiency, its reliability, its economy, its safety, its simplicity, its beauty, its durability, its modernity, its efficiency, its reliability.

CLARE BROS. & CO. Limited
PRESTON, ONT.

Not Another Winter of Stoves

Get This Book At Once—Learn All About This Modern Heating System That Costs Less to Install and Less to Run

You'll save yourself a lot of money next winter if you install a HECLA Pipeless Furnace. It will cost you less to install than any other efficient heating system. And because of its patented Steel-Ribbed Firepot, it will quickly pay for itself. For the exclusive feature, added to the pipeless principle of heating, cuts down fuel bills amazingly. In short, with coal so present prices, you can't afford to do without a HECLA Pipeless Furnace. We guarantee absolutely to beat any burner of any size with complete satisfaction.

In a Class by Itself! Study these Features! FREE

Wherever HECLA Pipeless Furnaces have been installed they have long and happy records. Not one of the thousands of owners throughout the country has had a single complaint. It has been the best-selling burner in the world. That's why it's the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities.

CLARE BROS. & CO. Limited
PRESTON, ONT.

What Did You Pay For? Coal This Winter?

Here's a Furnace that Cuts Down Fuel Bills Surprisingly and COSTS LESS to Install.

What's the secret? It's the HECLA Pipeless Furnace. It's the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities.

Installed in a Day. Guaranteed to Heat Any Home up to 15 Rooms!

CLARE BROS. & CO. Limited
PRESTON, ONT.

EXTRA Business!

Pipeless Jobs Open New Market!

And This Furnace Outmatches Competition!

"Hecla" Pipeless Furnace advertising is appearing in all the leading publications throughout Canada because

- we know the furnace is right. No other furnace can compare with it.
- we realize the tremendous market this fine economical modern heating system has opened up.

It offers YOU a quick, clean profit.

Every month in the year is an open season. Houses new and old, even with the cellar only partly excavated, are prospects. And the price is right!

Thousands of "Hecla" Pipeless Furnaces have been installed. Not a complaint has been received. And in selling the "Hecla" you can easily outmatch competition for you talk features of real merit—Steel-Ribbed Fire-pot, Patented Fused Joints, Circular Waterpan, and other superiorities.

Moreover you can sell the Hecla on a guarantee that has NO STRINGS!

There's business in your town. Let's show you how to get it. We've a booklet ready on selling "Hecla" Pipeless Furnaces—the arguments used by our most successful dealers. Write for it—it's free.

IMPORTANT FEATURES

1. Steel-Ribbed Firepot —saves coal.
2. Patented Fused Joints — prevents leaks of gas and dust.
3. Circular Waterpan —gives ample moisture.
4. Cast-iron Combustion Chamber—guaranteed for five years
5. Automatic Gas Damper.
6. Individual Grate Bars
7. Large Firing Door.
8. Tripe casing—lining really galvanized.

A BETTER FURNACE

And Saves One-Third On Fuel Bills

The "Hecla" Pipeless Furnace enables a builder to save many valuable dollars on the cost of a house and yet give what you please. It adds a valuable selling feature, for it not only heats the home properly, but it does so on much less fuel than any other heating system.

Guaranteed Against Leaks of Gas or Dust!

The HECLA Pipeless Furnace is the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities. It's the only burner that's been sold in such large quantities.

CLARE BROS. & CO. Limited
PRESTON, ONT.

COLD AIR WARM AIR COLD AIR

CLARE BROS. & CO., Limited PRESTON Winnipeg Vancouver

HECLA PIPELESS FURNACE

When writing advertisers say you saw their advertisement in the SANITARY ENGINEER

BOILER TUBES—Seamless		Lapweld
1 inch	26 00	
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch	29 25	22 00
2¼ inch	33 00	25 00
2½ inch	41 75	27 00
3 inch	49 25	35 00
3½ inch	63 50	40 00
4 inch	85 00	50 25

Eavestrough In Demand

A good demand for conductor pipe, eavestrough and conductor elbows is now reported. Better weather conditions, coupled with the erection of numerous small buildings and minor house repairs has resulted in this seasonable activity. The present movement in these products is now stated as more satisfactory. Price quotations still remain at the new discount levels recently announced. Following are current prices:

TROUGH (Eave)

O. G., Square Bead and half round.
Size in girth:

Per 100 ft.		per 100 ft.
8-in.	\$15 90	15-in. \$28 80
10-in.	17 70	18-in. 36 50
12-in.	21 20	

Less 60 p.c.

PIPE (Conductor)

Plain, round or corrugated

Per 100 ft. in 10-ft. lengths	
2 in., list	\$18 40
3 in., list	22 30
4 in., list	29 60
5 in., list	40 00
6 in., list	49 00

Less 60 p.c.

CONDUCTOR ELBOWS

Plan round or round corrugated—

2 inch	5 25
3 inch	6 00
4 inch	10 50
5 inch	24 00
6 inch	29 00

Discount 55 p.c.

Small Orders Prevalent In Iron and Steel

Local price quotations on bar iron and steel remain unchanged this week, and with an understanding having been reached among the dealers, future revision are expected to be dependent upon conditions and changes prevailing on the Pittsburg markets. Present business continues to be chiefly composed of very small orders, and no immediate improvement in demand is looked for.

Rumors that another price war is anticipated between the steel mills in the United States continue to slightly upset the stabilized markets, and consequently buying for future delivery is retarded in many lines. The present unsettled condition of the steel industry, is reflected in the small amount of new business, buyers declining to commit themselves in advance.

Current prices remain locally as follows:

IRON AND STEEL

Mild steel, 3-16 in. and lighter...	\$ 4 50
Do., ¼ in. and heavier.....	4 00
Bar iron, 3-16 in. and lighter...	4 50
Do., ¼ in. and heavier.....	3 75
Angle base	4 00
Horseshoe iron	4 10
Tire Steel	4 70 5 95
Band Steel	4 50
Spring Steel	10 75 12 75
Mining drill steel.....	23 00
Crucible cast sheet steel 30 00	35 00
Cast tool steel	20 00
Sleighshoe steel	4 10 4 50
Norway iron	15 00
Toe caulk iron	5 40 6 40
Hoop steel	6 00

Scrap Prices Show Declines Toronto.

Scrap metal prices are easier this week, due to the continued indifference of consumers. Quiet conditions prevail and little interest is evident. Improvement in operations is very slow, and consumers are still purchasing according to immediate needs only. Sentiment is developing, however, that an increase in the buying of some lines of waste materials is anticipated in the future.

The following list shows a slightly lower range on certain prices, which are the average nominal quotations for fairly large quantities:

WASTE MATERIALS

No. 2 busheling.....	\$13 00
Heavy Melting steel gross	
ton	13 50 14 50
R. Rd. wrought iron, No.	
1, gr. ton.....	11 00 12 00
Scrap pipe, gr. ton....	7 00 8 00
Stove plate, net ton....	15 00 16 00
No. 1 machinery cast. net	
ton.....	22 50 23 50
Heavy lead	4 50 5 00
Tea lead	2 25 2 75
Red brass	10 00
Yellow brass	6 50 7 50
Light brass	4 00 4 50
Heavy Copper.....	10 00 11 00
Scrap zinc	3 50 4 00
Old rubbers, boots, shoes	2 75 3 25
Lumbermen's rubber	
boots	1 75 2 25
Auto tires.....	0 50 1 00
Solid tires.....	0 75 1 25

Reaction In Ingot Metals

Easier market tones and some reductions are among the changes in ingot metals this week. A reaction has been evident in foreign buying, which for the past few weeks was the chief support of the strength recorded in

the of copper, lead and tin.

COPPER—The copper market is reported much easier, and quotations are now holding steady. The presence of surplus stocks of scrap copper has had its effect on the market. The heavy slump in the exchange rate resulted in a decrease of foreign buying, which has been the main support of the domestic situation during recent weeks. Very few inquiries are in evidence, and reports indicate that ample stocks are available for present needs. Local quotations remain unchanged at 18 cents.

TIN—The recent fluctuations in exchange made foreign values of tin very uncertain. A corresponding weakening in the domestic markets has been noted, and a sagging in price resulted. This reduction brings the nominal quotation to 38 cents, and the demand at present is dull. Future recovery is looked for in some quarters.

LEAD—The lead market is reported dull and unsteady this week, and buyers are adopting a waiting policy pending future developments. Foreign quotations have declined slightly, and this has been reflected locally with a decline of 25 cents, the average price being \$6.50.

SPELTER—Spelter is still selling below cost, with a feeble demand on all markets. Business is reported as very dull, and lower quotations have not served to bring any new buyers into the market. Surplus stocks are heavy. A reduction has been recorded locally, the price of \$7.25 being made on recent inquiries.

ANTIMONY—Consumers are showing little interest in antimony at the present time. The slight concessions that have been made by some dealers failed to increase their business to any extent. Values are therefore unchanged from previous levels, and the local current prices are maintained at from 8 to 10 cents.

ALUMINUM—This market is reported almost neglected, but prices are holding at previous levels. Foreign markets maintain that present quotations could be shaded for any large amount of business, but the price of 30 cents is still in effect locally.

WINNIPEG

WINNIPEG, June 13.—A downward trend is still in evidence on prices covering some lines of plumbing and steam-fitting supplies. Compression work and cocks are lowered in price, also eavestrough and conductor pipe being marked down. Quotations on pipe fittings remain steady, and wrought pipe is also quiet.

Sheet and plates still hold at previous levels, but bar iron and steel have been reduced. Soil pipe and cotton waste are unchanged in price. Business conditions show gradual signs of improvement, and wholesalers and jobbers are becoming more optimistic regarding prospects for the summer and fall seasons.



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Sell Them A
JEWEL
You Sell
Them What
They Want**

There is no other line that offers you so great an opportunity to create goodwill and furnace reputation. With the Jewel you are giving your customers the best their money will buy—giving them real quality that means enduring service for years.

All materials entering into the manufacture of "Jewel" Furnaces are highest grade and they are erected by skilled mechanics under the supervision of experts, which ensure the dealer and user entire satisfaction.

MANUFACTURED BY

The Burrow, Stewart & Milne Co., Limited

Hamilton

Ontario

Eavestrough and Conductor Pipe Reduced

Winnipeg

A slight reduction is made in prices of Eavestrough and Conductor pipe. Following are the latest quotations:

EAVESTROUGH GALVANIZED

O.G. Square Bead

8 inch.....	6.53
10 inch.....	7.20
12 inch.....	7.78
15 inch.....	12.15

O.G. Round Bead

8 inch.....	6.78
10 inch.....	7.45
12 inch.....	9.03
15 inch.....	12.40

Half Round Bead

8 inch.....	6.84
10 inch.....	7.60
12 inch.....	9.18
15 inch.....	12.78

CONDUCTOR PIPE GALVANIZED

Corrugated or Round

2 inch.....	7.65
3 inch.....	9.45
4 inch.....	12.15
5 inch.....	17.10

CONDUCTOR ELBOWS

2 inch.....	2.34
3 inch.....	2.61
4 inch.....	4.14
5 inch.....	11.70
6 inch.....	13.95

CONDUCTOR SHOES

2 inch.....	2.88
3 inch.....	3.38
4 inch.....	5.04
5 inch.....	13.05
6 inch.....	15.30

Sheet Prices Unchanged

Winnipeg

Prices on all sheets remain unchanged and little improvement in business is noted. Following are the present quotations:

BLACK—10 ga., \$7.15; 12 ga., \$7.15; 14 ga., \$7.20; 16 ga., \$7.30; 18 ga., \$7.80; 20 ga., \$7.80; 22 ga., \$7.85; 24 ga., \$7.85; 26 ga., \$7.90; 28 ga., \$8.15.

GALVANIZED—16 ga., \$9.10; 18 ga., \$9.25; 20 ga., \$9.25; 22 ga., \$9.40; 24 ga., \$9.40; 26 ga., \$9.55; 28 ga., \$10.15; 10 $\frac{3}{4}$ ga., \$10.55.

Corrugated Iron Reduced

Winnipeg

Prices on corrugated iron are reduced this week and are as follows:

CORRUGATED SHEETS

Galvanized

28 ga.....	8.55
26 ga.....	9.45

Painted

28 ga.....	7.20
26 ga.....	8.33

Linseed Oil Quotation Show Increase

Winnipeg

The price on Linseed Oil has advanced 5 cents per gallon and is now quoted at \$1.10 per gallon for Raw and \$1.13 for Boiled.

No Change in Pipe

Winnipeg

Prices have not changed on wrought iron pipe since last issue of Sanitary Engineer and the following are the prevailing prices:

BLACK PIPE F.O.B.

Size ins.	Winnipeg.	Calgary, Edmonton, Medicine Hat.	Saskatoon.	Regina.	Brandon.
[Add to Winnipeg price]					
$\frac{1}{8}$	\$ 6.21	\$ 0.30	\$ 0.20	\$ 0.17	\$ 0.11
$\frac{1}{4}$	5.31	0.53	0.34	0.30	0.19
$\frac{3}{8}$	5.45	0.70	0.45	0.40	0.26
$\frac{1}{2}$	7.25	1.05	0.67	0.59	0.38
$\frac{3}{4}$	8.73	1.40	0.90	0.79	0.51
1	12.56	2.08	1.34	1.17	0.75
1 $\frac{1}{4}$	17.01	2.80	1.80	1.57	1.00
1 $\frac{1}{2}$	20.34	3.35	2.15	1.83	1.21
2	27.36	4.50	2.88	2.52	1.62
2 $\frac{1}{2}$	44.37	7.18	4.60	4.02	2.68
3	58.01	9.42	6.03	5.28	3.39
3 $\frac{1}{2}$	76.05	11.25	7.20	6.30	4.05
4	90.00	12.33	8.53	7.46	4.80
4 $\frac{1}{2}$	101.70	15.61	10.04	8.75	5.62
5	118.80	18.12	11.60	10.15	6.52
6	154.80	23.45	15.00	13.14	8.44
7	234.00	29.09	18.62	16.28	10.46
8L	245.70	31.25	20.00	17.50	11.25
9	338.40	42.20	29.96	23.59	15.16
10L	314.10	40.00	25.60	22.40	14.40

GALVANIZED PIPE

Size	Winnipeg	Calgary, Edmonton, Medicine Hat.	Saskatoon.	Regina.	Brandon.
$\frac{1}{8}$	\$ 8.69	\$ 0.30	\$ 0.20	\$ 0.17	\$ 0.11
$\frac{1}{4}$	7.61	0.53	0.34	0.30	0.19
$\frac{3}{8}$	7.79	0.70	0.45	0.40	0.26
$\frac{1}{2}$	9.00	1.05	0.67	0.59	0.38
$\frac{3}{4}$	10.98	1.40	0.90	0.79	0.51
1	15.89	2.08	1.34	1.17	0.75
1 $\frac{1}{4}$	21.51	2.80	1.80	1.57	1.00
1 $\frac{1}{2}$	25.70	3.35	2.15	1.83	1.21
2	34.61	4.50	2.88	2.52	1.62
2 $\frac{1}{2}$	56.12	7.18	4.60	4.02	2.68
3	73.40	9.42	6.03	5.28	3.39
3 $\frac{1}{2}$	94.64	11.25	7.20	6.30	4.05
4	112.50	12.33	8.53	7.46	4.80
4 $\frac{1}{2}$	127.80	15.61	10.04	8.75	5.62
5	149.40	18.12	11.60	10.15	6.52
6	193.50	23.45	15.00	13.14	8.44
7	.....	29.09	18.62	16.28	10.46
8	.....	31.25	20.00	17.50	11.25

Prices Unchanged On Soil Pipe and Fittings

Winnipeg

Prices on Soil Pipe and Fittings remain the same as quoted last issue and the following are the present prices:

SOIL PIPE

2 and 3 in.....	7 $\frac{1}{2}$ per cent off
4 in.....	20 and 5 per cent off
5 and 6 in.....	12 $\frac{1}{2}$ per cent off
8 in.....	7 $\frac{1}{2}$ per cent ad

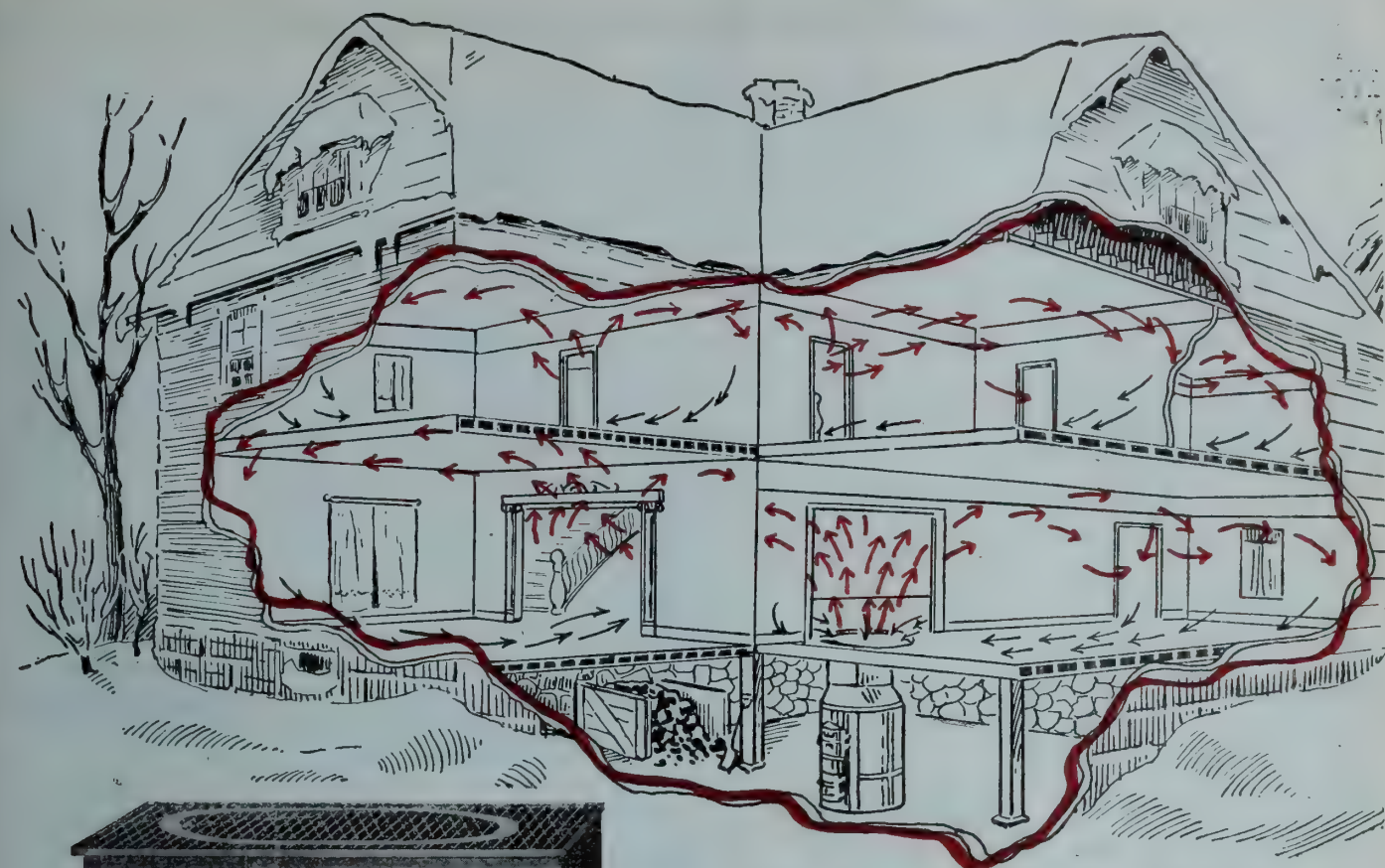
SOIL PIPE FITTINGS

2 and 3 in.....	35 and 5 per cent off
4, 5 and 6.....	40 and 5 per cent off
8 in.....	7 $\frac{1}{2}$ per cent. adv.

IMPROVING QUEBEC SANITARY CONDITIONS (continued from page 30)

The first thing on our programme was the healthy housing scheme to build houses with the federal government loan and as soon as they started to talk about healthy homes in Quebec, I replied "You cannot build healthy homes without Sanitary Plumbing." They did not pay much attention to what I said until I had repeated it at least twenty-five times. Then, I suppose they thought I was going crazy and they asked me what I meant. My reply was: "Give me about an hour to explain and you will understand me." They agreed to allow me to speak on the subject at the next meeting. Then I gave the first lecture on Sanitary Plumbing in Quebec. It is necessary to tell you that they were astonished to hear that plumbing was not only an absolute necessity for every modern city, but that it was also a danger for the health when it was not done in compliance with scientific principles.

A resolution asking the civic authorities to draft such by-laws as mentioned in my lecture was approved of and immediately sent to the City Hall but the City Council did not find it was yet necessary and they kept quiet until six months later, when I was asked by the Rotary Club to give a lecture on the nature of my business, and there again I spoke on Sanitary Plumbing. This second lecture was published by both the "Sanitary Engineer" and "The Sanitary and Heating Journal" and I wish to thank both of them for their splendid co-operation. The Rotary Club of Quebec took immediate action on the subject and a delegation went to the City Hall to meet the Mayor the very following day and we came out with the promise that the City Council would act very shortly on the matter. Notwithstanding the Mayor's promise, which I am sure was sincere, three months passed without hearing anything on the question. Then with the co-operation of the Quebec Builders' Exchange we published five hundred booklets of my two conferences and delivered them in the City of Quebec, to every prominent man, not forgetting the Aldermen and the Health Officers. This, then was the real motor which started the machine which is now running at full speed. To conclude I will read you an editorial from the Quebec Telegraph of May 27th, 1921, which will give you exactly the position as it is now. This is what the editor says: "It is extremely gratifying to know that Quebec is at least to have a proper system of sanitary plumbing governed by a municipal by-law framed in accordance with the most modern sanitary rules. Several weeks ago we published at considerable length a report of a very able address delivered before the Rotary Club by Mr. E. G. Brousseau. The result of all this agitation was the appointment by the City Council of a special committee to consider the matter thoroughly and to draw up a by-law to govern the system of plumbing to be adopted in all future buildings in this city. This committee, which consisted of the mayor, Aldermen Dr. Martin, Dr. Bedard, Dr. C. (continued on page 43)



“THE NEW IDEA” PIPELESS FURNACE

*Is our latest achievement, and
of which we are mighty proud.*

For seventy-five years we have been successfully manufacturing “New Idea” Warm Air Pipe Furnaces which have been recognized by engineers all over Canada as the most scientific heating plant that has ever been built.

Now we are also manufacturing the “New Idea” Pipeless Furnace which is also carrying the fame of our company broadcast because it is really doing everything we claim for it, and more.

Make up a list of the houses in your town that are not equipped with a furnace and you will find you have a large number of good prospects. Then write us for our exclusive Agency plan for your town and district. The season for installing furnaces is now at hand so don't delay—but write today. Catalogues and pamphlets mailed free on request. Address all Correspondence to head office at Hamilton, Ontario.

The Hamilton Stove & Heater Co. Limited

Successors to

The Gurney, Tilden Company, Limited
Hamilton, Ontario

Winnipeg, Man.

Vancouver, B. C.

Seventy-five years successful manufacturing.

Need Universal Sanitation Standards

(continued from page 32.)

force are granted to master plumbers, and in a few such localities to journey-men plumbers, but in these towns of the Dominion without regulations no permits are required. Inspection, which is carried on under the direction of the local Board of Health or the local building department, is intended to give assurance that the work has been done properly and in accordance with the regulations—a guarantee against dishonesty, carelessness, flaws in materials, and accident. Licenses, permits, regulations, and inspections invariably go together, a town adopting all or none.

The practice of examining and licensing plumbers appears to be working quite satisfactorily. The inspection service does not always give the protection expected of it, because of the difficulty of enforcing penalties. Failure of the authorities—namely, boards of Health, building departments and even the courts to back up the inspectors and secure compliance with the law naturally tends to discourage the inspectors and causes many of them to carry on their work in a perfunctory manner. Failure of the inspectors to be on the job at just the time desired causes delay in building, with consequential losses. The inspection does not always include a test of the system after the fixtures are set, but only a water test of the piping. There is not provision for "Follow Up" inspections after the installation has been once approved, and regular inspections by the health authorities are not generally made. Yet it is the old plumbing rather than the new which needs attention. The granting of permits to journeymen, which is sometimes done, has thrown an increasing burden on the inspector, and this practice does not tend to give the best results.

In our opinion the laws should be modified, so as to throw a greater responsibility upon the master plumber—that is, upon the man of experience—placing less dependence upon the combination journey-man and inspector. Master Plumbers, maintaining a permanent shop, have a business and a craftsman's reputation to sustain; journeymen and inspectors do not have to do this to the same extent.

If the practice of issuing permits to journeymen were done away with, and if it were made possible to establish minimum requirements for plumbing installations in small communities which at the present time are without regulations, either omitting entirely permit and inspection, or making more general the district system authorized by law, and trusting to some extent to licensed master plumbers to comply with the regulations, with a penalty of loss of license for not complying with them; we believe that in sparsely settled localities the public interest would be sufficiently safeguarded. In other words, we believe that the Dominion plumbing regulations would be well enough administered in small communities under the district system or by the master plumbers themselves who have

personal reputations to maintain among their neighbors, but that in large places where this personal relation cannot so readily exist there should be the regular system of permit and inspection. Objection may be urged that this plan is impracticable because so much work is done today in small places by cut-of-town plumbers, but the answer is that the public needs to have local plumbers to look after repair work, and it is not for the best interest of small communities to have all their plumbing work done by the plumbers of the larger cities. We are of the opinion that each community should take the initiative and decide for itself those matters which relate to business and administration.

Regulation of Plumbing Design

The regulation of plumbing design is on a different basis. It does not involve business or administrative matters, but rests on scientific laws and upon practical experience. These are the same in one town as another, and there is no reasonable justification for the great variety of regulations found in the cities and towns of our own Dominion. On the other hand, buildings differ, and regulation of design applicable to one type of building is not appropriate for all other types of buildings. The single cottage house presents one problem; the three-decker and the apartment of four or more stories another problem; the office building still another; and the school-house and factory different problems. There is no reason why a plumbing design unsuited to a three-decker in Montreal is not equally unsuited to a three-decker in Quebec, barring possible differences in the proximity of other buildings and the existence or absence of a sewer in the street. It seems to us that by carefully studying the needs of different buildings it will be possible to effect a classification which will accomplish two things—first, to reduce the cost and trouble to the owner and builder of the small cottage house of the sort desired by the wage earners and commonly found in small towns; secondly, to give greater protection to those who live in multiple houses, which may be regarded as quasi-public dwellings, against the misuse of the common plumbing system by their co-occupants; and third, having made this classification, to be able thereby to extend the plumbing regulations in a uniform manner to the entire Dominion.

Such a classification will require care in its working out, and discussion by all who are interested in the housing problem.

We are of the opinion that the laws regulating plumbing should be more elastic, but that they should be relatively uniform throughout the Dominion in all localities operating thereunder, our suggestions being as follows:—

- 1.—That the licensing of master plumbers and journeymen be compulsory throughout the Dominion.
- 2.—That minimum plumbing regulations for buildings of different classes be established and made uniform throughout the Dominion; that these be mandatory for cities and large town, but permissive for small towns.
- 3.—That the permit and inspection

systems be mandatory for cities and large towns, but permissive for small towns.

4.—That the installation of water piping systems which convey water to fixtures be regarded as plumbing work and subject to supervision and inspection the same as the drainage system.

In submitting to you the account of my humble efforts and at the same time laying down the responsibilities of the office with which you have honored me, let me extend to the officers and all other interested friends associated with me that gratitude which every man feels who has been nobly assisted in the work. I trust that my successor may have your continued and kindly consideration, your loyal support, and greater enthusiasm given him by the individual members as well as by his associate officers.

JOHN WRIGHT, Toronto,
Chairman of Sanitation.

Improving Quebec Sanitary Conditions

(continued from page 46.)

R. Paquin of the Health Board, Mr. Arthur Picard and E. G. Brousseau, has just gone carefully into this whole subject and has finally confided the preparation of a by-law to Messrs. Brousseau and Picard who have special practical knowledge on the subject and to Dr. Paquin, Medical Health Officer of the City.

Mr. Brousseau is now at work upon the details of the by-laws which will be submitted to Messrs. Picard and Paquin, who will study what additions, if any, should be made, and will aid in drafting it in proper form, after which it will come before the entire committee and the City Council. We may now expect without unnecessary delay to have a modern plumbing by-law which will not be an exact copy of those in force in either New York or Montreal, but will be of a character more specially suitable to the needs of Quebec, based upon latest provincial legislation on the subject with the additions of provisions justified by more modern experience. We may thus look forward at an early date to the filling of a long-felt want in Quebec, and the next important step in this direction will then be the due enforcement of the new by-law in such a measure as will insure the protection of life and health.

Gentlemen, this editor is right. I am at work drafting this by-law and they are going to get it within this month, and by the fall Quebec, I am sure will have a modern civic plumbing system.

Now, members of the craft, I hope I have not annoyed you with so many details on this question of plumbing by-laws, if I have I am sorry. But my idea in doing so was to stamp on your minds that if with some energy and a good knowledge of the questions we advocate, any one man with no influence can obtain such a result, can you not conceive what such a body as the Canadian Society of Domestic Sanitary & Heating Engineers as a whole, could obtain if they would only stick to their motto and work in the spirit of "All for one, One for All."

E. G. Brousseau,
Quebec Provincial Vice-President.



It is not necessary to wait until

*The 12th of July for
William the Third*
to test the

Pussyfoot Closet Tank

for here we have our

William the Third

with his Pet Pony (for on this occasion the White Horse was not available.)

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William the Third,

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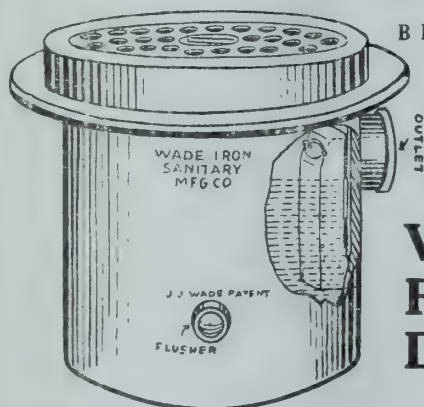
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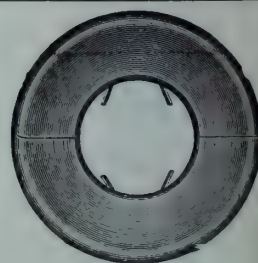
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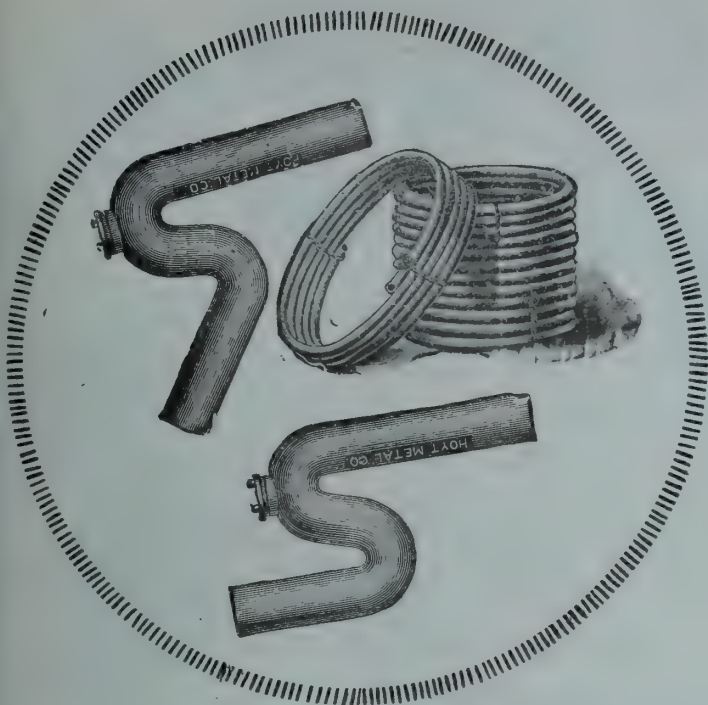
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Ask your jobber, or write us direct. We can ship on short notice from stock.

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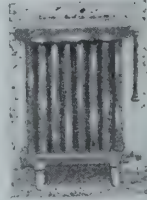
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An improvement in engineering and design.

The Victory Radiator is made with two flat, hollow castings, one for the top and the other for the bottom, with tubes inserted in them. One tube is within the other. In this way, water is caused to circulate through the headers and be-



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Further investigation proves them still more efficient. Steel tubing is thinner and gives better radiation. The air circulation is better. The radiators occupy a minimum of space. They are artistic in appearance.

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Your customers know the excellent reputation of Morrison Products and buy them readily.

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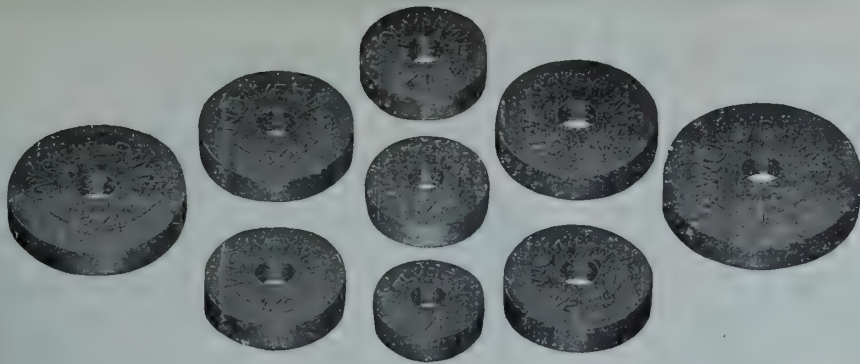
In every feature of design Morrison Valves are abreast of modern engineering progress.

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A WOLVERINE BIBB WASHER FOR EVERY PURPOSE

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Other Wolverine lines include Fuller Balls, Sure-Scat Tank Balls, the real rubber kind; Syphon Rings; Sink Stoppers; Solid Rubber Plugs—but why attempt a complete list here. All we want to tell you is Wolverine Products are quality goods and will help you to produce good work and satisfied customers.

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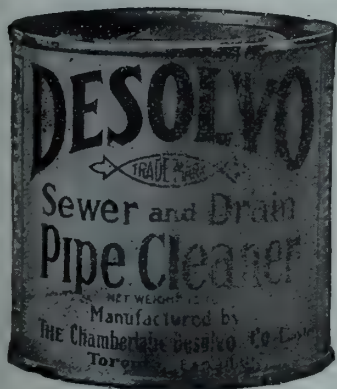
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Lawns**

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For Gas, Electric and Other Power

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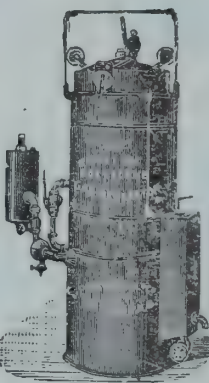
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PRIVATE LIGHTING SYSTEMS



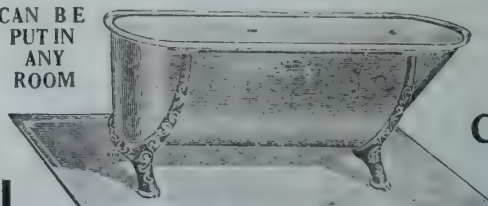
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Hundreds in use in the best buildings upwards 20 years. No delicate and expensive parts that require renewing as in other systems, so that you can give a better guarantee than any others.

Send for circular and go after this business. We will assist you.

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ANY
ROOM



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TRADE**

This advertisement is of interest to you if you number among your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of malleable steel enameled, and installed without plumbing—
A very modern and attractive addition to a
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Agents: A. J. ... St. John, N.B. and Eastern
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INDEX TO ADVERTISERS

Allison, K. B.	7
American Plumbers	56
Amherst Foundry Co. ... Inside front cover	
Anthes Foundry Co. ... Inside Back Cover	
Atlas Tank Works.....	53
Beaton & Cadwell	50
Brown Boggs Co.	41
Burrows, Stewart & Milne Co., Ltd.	45
Campbell & Co., P.....	54
Canadian John Wood Mfg. Co., Ltd....	10-11
Canada Metal Co.	49
Canadian Brass Co.	2
Canadian Tube & Steel Products.....	56
Chamberlain Desolvo Co.	53
Clare Bros.	47
Crane Limited	8
Cunningham & Hill, Ltd., W. H.	12
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co. ... Outside front cover	
Fittings, Ltd.	54
Galt Brass Co. Back cover	
Gendron Mfg. Co., Ltd.	56
Greenfield Tap & Die Corp.	5
Gurney Foundry Co.	9
Hall Zryd Foundry Company, Ltd.....	14
Hamilton Stove & Heater Co., Ltd.....	47
Hause Mfg. Co., Chas. F.	56
Hoyt Metal Co.	51
International Malleable Iron Co.	39
Jardine & Co., A. B.	3
Katie Foundry	56
Kerr Eng. Co., Ltd.	4
Lord & Burnham Co.	13
Marks & Co.	54
McDougall & Co., R.	54
McIntyre & Taylor, Ltd.	51
Montreal General Tool Co.....	52
Mueller Mfg. Co.	37
McIntyre & Taylor	51
Morrison Brass Mfg. Co., Ltd., Jas.....	52
Pease Foundry Co.	3
Porcelain Products, Limited	50
Port Hope Sanitary Mfg. Co., Ltd....	28-29
Spencer Heater Co. of Canada, Ltd.....	4
St. Louis Technical Institute.....	56
Standard Sanitary Mfg. Co.	16
Steel Trough & Machine Co.	54
United Brass Foundry & Engineers....	12
Wade Iron & Sanitary Mfg. Co.	50
Warden-King, Limited	6
Williams & Co., J. H.	51
Wolverine, Ltd.	53

To Advertisers and Readers of
Sanitary Engineer

It is common knowledge that the union printers in many towns and cities in Canada and the United States are on strike. For the first time in its 35 years' history The MacLean Publishing Company is involved and we believe you will be interested in receiving a statement as to what the printer's unions are striking for and why their demands cannot be granted.

A year ago (although the wage agreement at that time had over a year to run) the Toronto Publishers and Master Printers gave their employees voluntarily a 10 p. c. advance in wages, making the minimum wage \$35.20 for a 48-hour week. This was given in recognition of the fact that living costs were then advancing. This voluntary agreement for \$35.20 a week expired June 1st. Notwithstanding that the cost of living has declined 22 p. c. since March, 1920, the printers' union demanded a 44 hour week and a wage of \$44.00. This means four hours per week less work and an increase in rate of pay per hour of 33 per cent. Employing printers can grant neither shorter hours nor higher wages and the saner printers realize that their union's demands are unreasonable. A large percentage of our own men did not want to strike, but the union leaders in the United States have ordered it and the strike is on.

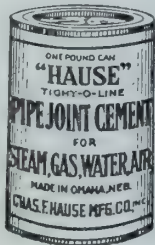
Negotiations have been carried on for months. The employing printers have been tireless in their efforts to bring about a settlement without a strike. They are now engaged in a fight, not only for their existence but for a principle in which every business man is interested. If the unions secure their unreasonable demands then the fight would surely be carried to other industries. Business men with whom we have discussed the matter have been most emphatic in urging us to take a most determined stand. "Stay with it and we'll stand with you," they say.

And so we shall "carry on". We shall be somewhat handicapped, especially at first there may be occasions when you can extend your co-operation and support and we feel that we can count on you. It is our intention to issue our publications regularly and as promptly as possible. There will be difficulties to be overcome, and for a short term our service may not be up to its usual high standard. If, therefore, your publication does not reach you on time, if we have to repeat a former advertisement, if proofs are not submitted, or if we fall short of full efficiency in any way, we ask your kind indulgence. We are fighting for greater efficiency at a critical juncture in the world's history, and your co-operation and moral support will help.

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The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.

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**TIGHT-O-LINE
PIPE JOINT CEMENT**SETS LIKE GUM
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Offers the best and quickest service to the Plumbers, with a full line of Plumbing and Steam Fittings. Also Flange Fittings, Wrought Iron and Steel Pipe.

Prices to protect the plumber.

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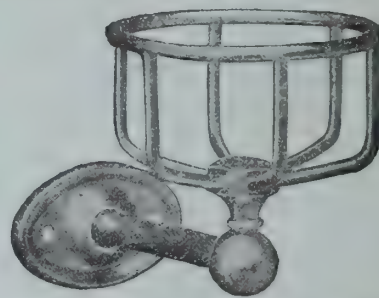
Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

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1 Tinnerns 8 foot Sight Brake

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Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.

Courses in SHEET METAL PATTERN DRAFTING.

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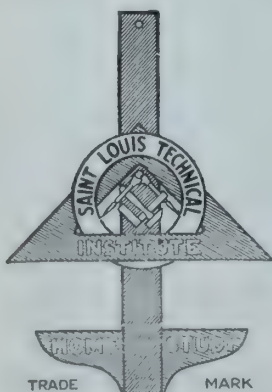
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St. Louis, Mo.





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USERS SAY:

"It Works Perfectly"

Read the following letters from farmers who are using the Anthes Syphon for their Sewage Disposal Systems:

Wawanesa, Man.

I like the system first-class. It works so well that I have not seen into the tank for six years, so expect the syphon is working well. It is perfect and no well equipped farm should be without it.

(Signed) S. H. HENDERSON.

Balcarres, Sask.

The septic tank is working O.K. Too much praise cannot be given it if it always works like it has. And the comfort of it cannot be told in words.

(Signed) S. STEPHENS.

WHAT A WOMAN HAS TO SAY:

Holland, Man.

March 24th, 1921

Our Septic Tank and Sewage Disposal System installed last August has given entire satisfaction. All through the winter there has never been any indication of freezing, or any other objectionable feature.

The system has proved a very great comfort, which the whole family appreciates.

(Signed) M. E. (Mrs. W. J.) CHARTERS.

Balcarres, Sask.

April 5th, 1921

.....I had no trouble from freezing. I do not know of any improvements that could be made. Everything works fine.

(Signed) THOS. STEPHENS.

Lenore, Man.,
March 25th, 1921

With regard to septic tank, everything has worked O.K. since it was installed in October, 1918. It has never given trouble from frost and the syphon valve has worked perfectly. The whole system is entirely satisfactory.

(Signed) R. J. BRAY.

Regent, Man.,
March 25th, 1921

I must say that we are more than satisfied; the system works perfectly. I have been speaking well of it to anyone that has asked me. The system has been installed nineteen months.

(Signed) DOUGLAS POTTER.

Oak Lake, Man.,
March 30th, 1921

The installation has given perfect satisfaction. There are no objectionable features.

(Signed) V. M. DUNLIVIE.

There are many farmers who do business with you that still jog along without sanitary plumbing in their homes. Think of the excellent prospect for sales that this means to you, not only for the Anthes Syphon, but also the plumbing fittings that must go with it.

Write us for full details and plans showing how to install the Anthes System.

ANTHES FOUNDRY LIMITED

Manufacturers of Cast Iron Soil Pipe and Fittings

WINNIPEG

TORONTO

SANITARY ENGINEER, PLUMBER AND STEAMFITTER

VITRO

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Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, JULY 1st, 1921

No. 13

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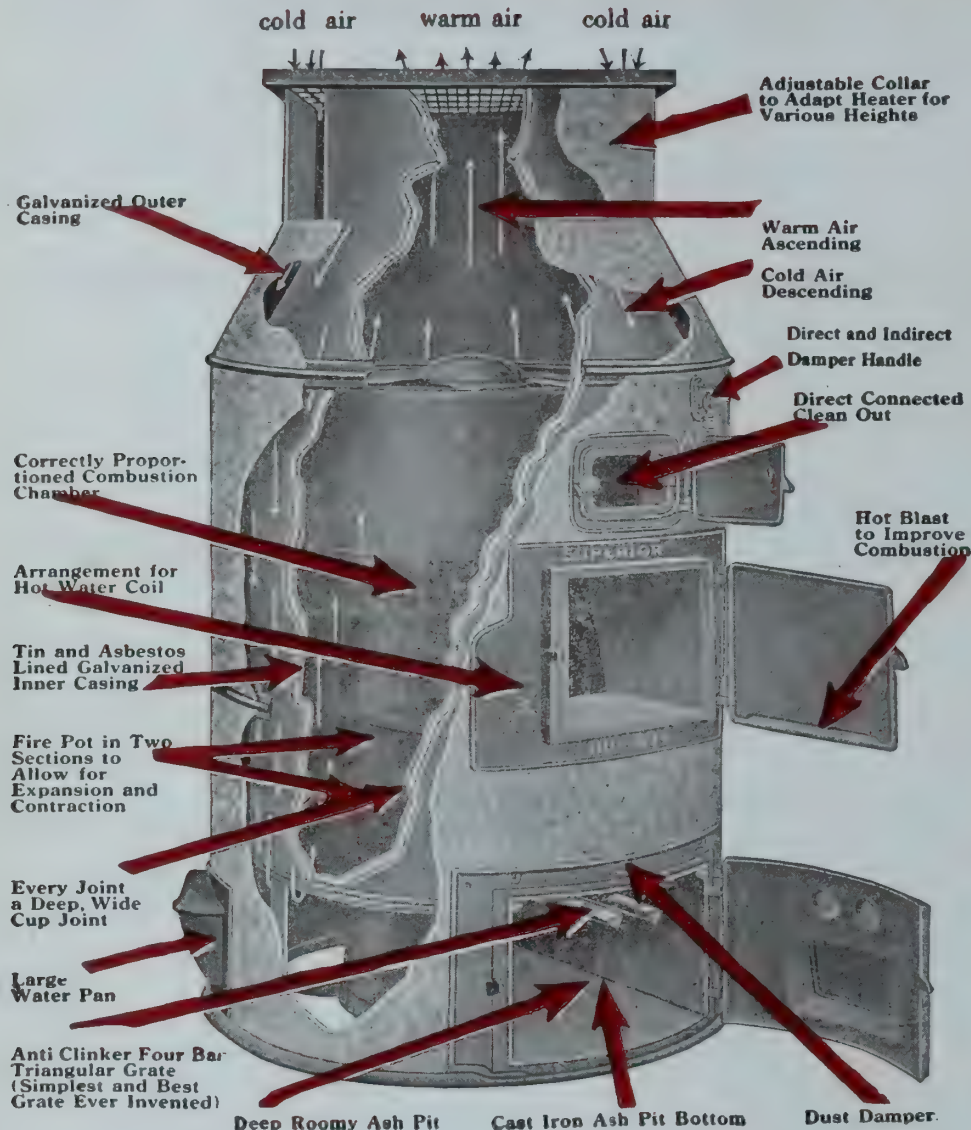
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NO. 316

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TINKER TOM



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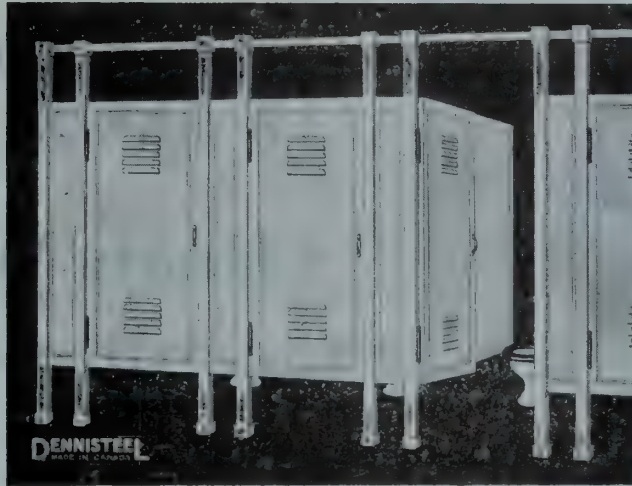
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No. 1

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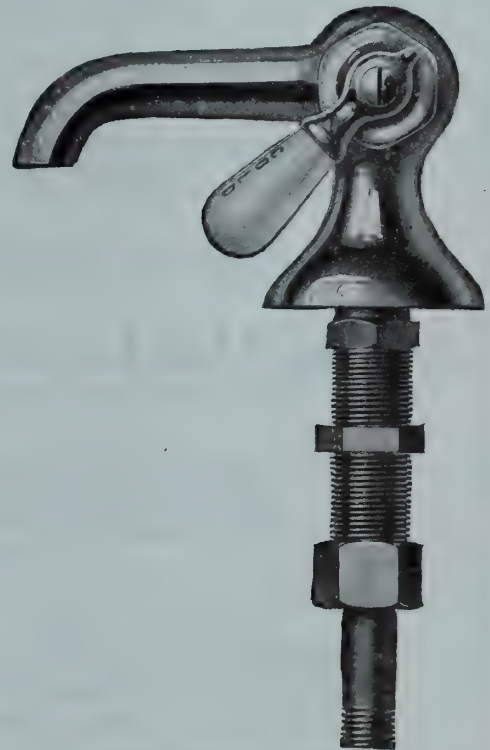


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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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CONTENTS

Complications in Tinsmiths' Case.....	11
Raising Efficiency of Plumbing Industry.....	12
Sewage Disposal for Small Communities.....	13
Problems of Sewage Disposal in West.....	14
Practical Sheet-metal Work.....	15
Editorials.....	16
Montreal Plumbers Adopt Schedule.....	17
Features of Electric Furnace.....	18
News from Here and There.....	19
Waterworks, Tenders, Construction, etc.....	19
Meilleurs Conditions Sanitaires Pour Quebec.....	22
Formation de la Societe de Quebec.....	23
Market Conditions and Tendencies.....	26

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Complications in Tinsmiths' Case

**In Face of Ruling from Ottawa Concerning Status of Tinsmiths for Purposes of Taxation, Reports Are Received that Local Collectors Are Both-
ering the Trade and Making Rulings of Their Own—Definite Statement
Given Sanitary Engineer Readers Herewith by Deputy Minister of Inland
Revenue.**

THE old question of whether a tinsmith should take out a manufacturer's license and collect the sales tax is again brought up even in the face of the recent decision in the test case.

W. H. Turnbull & Sons, Brantford, Ont., write that the local collector advises that as he reads the act a tinsmith is a man who does nothing but repair work and soldering, while a sheet metal worker does furnace work, makes up eavestroughs and is therefore a manufacturer, even under the latest provisions.

Collector Has Erred

But the local collector in this instance has erred in his attempt to define a tinsmith. This fact is established as the result of an interview the Ottawa representative of Sanitary Engineer had with George W. Taylor, assistant deputy minister of the Department of Customs and Inland Revenue. When asked for a definite ruling as to what constitutes a tinsmith, and whether he is liable for the collection of the manufacturer's tax, Mr Taylor said:

"The whole question rests upon the nature of the man's business. If the work he is doing is being done for the consumers, regardless of what he is making or assembling, then I say most emphatically he is a retailer and cannot be classed as a manufacturer. If the local collector in this case has made a ruling, it is not necessarily final. Under the new provisions where there is any doubt or dispute, either the dealer or the collector, or both, have the right to refer the matter to the Minister of Customs and Inland Revenue, who is the final authority.

"If it is established that the firm in question are manufacturers, then they are liable for the collection of the tax from the commencement of the present fiscal year.

"If the firm is satisfied that it is doing a strictly retail business, then all it has to do is to mark 'Abandoned' upon the taxation papers and return them to the department, and of course if the department takes no further action a firm may then con-

sider that it is not liable for the payment of the tax upon any of this year's sales."

From the above statement and ruling it is to be seen that the whole question is one of individual rather than collective adjustment. Each case will be decided upon its merits by the minister of the department who is the final authority. This should be comforting news to the tinsmith, because he knows now that he has the right to challenge any decision or ruling made by the local collector.

Regulations

The following is a copy of a circular letter sent by the secretary of the Dominion Board, Retail Merchants' Association of Canada, to the secretaries of the various provincial boards dealing with this matter in a general way:

"Excise taxes are to be paid by manufacturers or producers and wholesalers or jobbers.

"Excise taxes shall not be payable on sales of goods made to the order of each individual customer by a business which sells exclusively by retail under regulations by the Minister of Customs and Inland Revenue, who shall be the sole judge as to the classification of a business.

"Until the Minister of Customs and Inland Revenue makes his rulings regarding the retail trade, it is very necessary before any retail merchant makes application to take out a manufacturer's license, or before they inquire from the Customs Department, or decide what class they come under, they should first refer their case to the secretary of the association in their province, who is asked to take the matter up with our office here, so that we may know exactly under what classification the retail merchant should be placed. This is very important, otherwise we will find ourselves in the same position as we were in before, when all sorts of rulings were made which were contrary to the act."

Raising Efficiency of Plumbing Industry

Business Standards of Average Operator Are Low—Requirements of An Up-to-date Plumbing Office — Read Trade Papers — Trade Extension

Address by T. J. Mines, Brantford, Ont., before 24th Annual Convention Canadian Society D. S. and H. E., Quebec City

WE have all had a very nice time here this evening, and also throughout the three days of our visit in Quebec, but there is a serious side to life that means a great deal to us all. I venture to say after our three days Convention here, that many of us to-morrow will have forgotten the things that we have learned in these three days. The position I find myself in this evening is not an envious one, I assure you, for while any of you Gentlemen present undoubtedly could make any number of suggestions where the efficiency of our industry could be raised, I take it that what is required of me is to express my opinion from personal observation, experience, and from the particular point of view that I naturally would take from the standpoint of one who is engaged in the Plumbing Industry in common with the rest of you.

Such an engagement, of course is actuated by the desire of bettering our condition in the Trade of which we have been educated in a practical, mechanical way, or in other words, having secured an apprenticeship to the Trade of Plumbing, thereby becoming in due course a journeyman by educative and practical experience, up to this point by the way we advance step by step. The next step, however, is a stride, probably it would be best defined as a jump. You will note that before we became a journeyman plumber it was necessary for us to have a technical teaching before we were able to grasp the Why's of our doing certain things with waste pipes, traps, vents, back water valves, circulating pipes, etc. We were taught why certain ways were considered good practice, and what would be the consequence if we deviated from along recognized successful ways.

Up to this point the majority of us have been successful thanks to the guiding hand of those of experience but we became dissatisfied with our position in life and we took the jump, that I have intimated to you, and launched into business. The question that I would like to ask now is: **What Qualifications Have You to Justify Your Actions?** True you have served your apprenticeship and tuition, have become a plumber; but what tuition or apprenticeship have you served to become a business man, for as a business men you must be able to command success in the Commercial world. The fact of a man being a machinist does not qualify him to master an industry manufacturing machines, as does the same thing apply to a boiler maker or a moulder. Can any of you recall the letter or an enameller managing a successful enamel plant, or a soil pipe Foundry. How many brass moulders

or finishers can you count managing or proprietors of a brass works? How many wholesalers of plumbing supplies do you know who have served their apprenticeship as moulders, brass finishers or plumbers. You have the answer any one of you. What is it? Apprenticeship, tuition, education, any of the three, it matters not which you call it, but the definition is **Business Training**. I know and you know some of the best plumbers that ever poured metal from a ladle, plumbers whose technical knowledge is respected beyond question, who have entered into the plumbing business industry made a rank failure of it, and for what reason? Because they were simply a plumber. It never occurred to them that it was necessary to have a business training. I have known men who have made a success of the plumbing business, who, as a plumber, might be termed a darned good shoemaker but he had the one essential for success—**Business Training**.

Success in business should not be measured entirely from the dollar and cents standpoint, nor do I look upon it entirely from that angle. But rather from the angle of service to the community in which you are engaged in business. How should you perform this service? Employ good workmen, yes; help people out of trouble when their water pipes burst, or their waste pipes stop up, repair their faucets and closets when need be, yes—but these things are mechanical things that we were educated to throughout our apprenticeship, and the things that are expected of us from the public. These are the things we have been giving our attention to and we should give our attention to these things but a journeyman plumber can take care of these. They are mechanical that is why we employ the journeyman. When we engage ourselves in plumbing as a business, we would take upon ourselves the greater responsibility and serve the public as they are entitled to be served. We should fit ourselves to advise the public as to the proper type of plumbing fixture required for his particular requirement, the proper installation of the fixture, the grade or quality of the fixture for his convenience and service.

The question now arises, how is the plumber going to give this service. Can he make suggestions, give advice and recommend fixtures by catalogue? If he can, very well and good, but why go to the plumber, why not order from the mail order house who will give the information for the asking? The plumber is only too free to criticize the mail order house or wholesaler who sells direct to the consumer, and really, I am free to confess that only too often without cause, for the plumber as a rule, is nothing more or less

than a mail order man, there are exceptions, of course.

The man engaged in the plumbing business should have an office, a show room complete enough at least, to give prospective customers an idea of what they require not what they want, for as a rule the customer does not really know what he wants, and is almost invariably open for suggestions. The plumber should also carry a reasonable stock of staple articles at least, that he may be able to supply the requirements of the public without having to operate on the mail order principle.

I think now, sir, that you will agree with me in the main of what I have said. Let us get nearer to the point. You say that is good theory, but I can't put it into practice for the reason that I have to meet the competition of the man without a shop. You are right, it is only too true that class of competition is becoming greater all the time especially in these times of depression. Personally I know of two concerns who have maintained show rooms for years in a city of a population of something less than 40,000 people, that have been forced to abandon their show rooms and operate from their woodshed, a lamentable state of affairs, you will agree, but how is it to be overcome. In my humble opinion it is caused by lack of confidence. The wholesaler has no confidence in the operating plumber, nor has the plumber confidence in the wholesaler; the system of both is entirely wrong.

Now, let me see where it is wrong. 1st. what has placed the two men with the fairly equipped showrooms back to the woodshed, why the operating plumber without a place of business why in this same city I know of a case where an apprentice who has been away from the Trade for several years (and by the way he would never make a plumber if he tried for a hundred years) he was out of work and he applied for a plumber's license. Another case two fellows from the country had helped some pipe fitters. They were out of a job, applied for a license to do plumbing and knew practically nothing about plumbing. Fortunately these two cases have been stalled, but there are others who have secured licenses by different means and are operating to the detriment of the Trade in general. Is it any wonder that a plumber gets a bad name? **When I say detriment to the Trade in general** I mean the manufacturer and wholesaler. Why? Because in the first place his whole aim is to get contracts irrespective of service or quality of work, which reflects upon the fixtures and materials he installs. In the second place he is handling business

(Continued on Page 24)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

(Continued from June issue)

ADEQUATE means of access, for inspection purposes, should always be provided at each end of the drains, especially when same runs underneath a building. Underneath buildings and in bad ground drainage pipes constructed of cast iron make the best drains, having longer life and few joints, or if vitrified pipes are used they should be surrounded by at least six inches of Portland cement concrete.

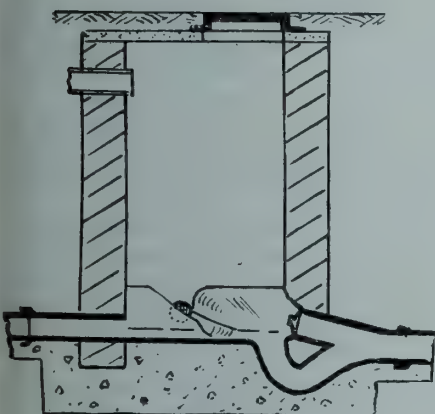


Fig. 38

Iron pipes should be laid in ground free from cinders and ashes and should be coated inside and outside with Dr. Augus Smith's hot bituminous solution or with coal tar, varnish or asphalt. The spigot and socket joints are run with lead and well caulked.

It is usual to place suitable traps or syphons, provided with proper means of access for purposes of cleansing on the main or branch connecting drains except the one from the soil pipe which acts in the capacity of the main ventilating shaft for the private house drains.

Traps are made of similar material to the pipes and to be effective must have a depth of water seal of at least 1½ inches and be free from all angles, projections, cavities, etc. that may interfere with a free flush and lead to the deposit of solid matter and should be located outside the building wherever possible and always be self-cleansing. Traps are placed on drains

to ensure as much as possible a sufficient and constant barrier or seal against the passage of sewer gas.

The very best designed trap is liable to failure through the evaporation of the water in the trap when the system is very little used, so that in empty houses provision should be made for renewing the water in the

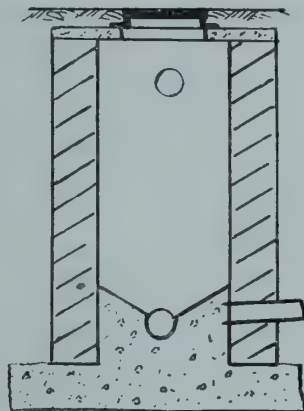


Fig. 39.

trap. Also the pressure of foul gas within the drain may force the water seal which may be remedied by efficient and proper ventilation. Water can also be sucked out of the trap by syphonic action and the placing of an air pipe connecting with the top of the trap beyond the seal will remedy this danger.

Lastly, the trap always imposes a certain amount of obstruction to the flow of sewage in the drain and tends to cause stoppage, and for this reason proper provision should always be made for good ventilation of the house drains by providing at least two untrapped openings to such drains; one opening should be as near as practicable to the main trap, next to the sewer connection, and the second should be at the farthest distance possible from the point at which the first mentioned opening shall be situated. The first opening shall be finished off near the level of the surface of the ground adjoining, by means of a suitable pipe, shaft or disconnecting chamber. The other opening shall be obtained by carrying up a pipe or shaft at least 4

inches in diameter to such a height and in such a manner as to effectually prevent any escape of foul air, from such pipe or shaft, into any building in the vicinity thereof. Both these openings should be protected by means of a suitable grating or cover which will not retard the ventilation or free passage of air but prevent any obstruction in or injury to any pipe or drain by the introduction of any substance through any such opening.

All drains should be laid deep enough to allow the lowest basement flow level being connected to same allowing ample fall and always taking into consideration the depth of the trap. In new structure the drainage connection and sanitary fittings should be installed towards the completion of the structure as rubbish etc., sometimes finds its way through the fittings into the drains and creates a blockage. At every quick change of direction or grade of the drain and inspection chamber should be constructed out of brick with cement concrete invert or cast iron airtight cover, as at these points the drains are liable to become choked and if at all possible—without increasing the first cost—all the branch drains should discharge into this chamber and same should be constructed large enough for a person to operate cleaning rods for locating and releasing any blockage that may occur in any part of the drain, as illustrated in Figs. 38, 39 and 40.

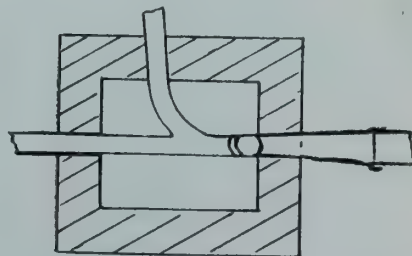


Fig. 40.

Problems of Sewage Disposal in West

Investigation and Recommendations of Commissioner of Public Health in Saskatchewan Reveal a Solution of Intricate Problems of Sewage Disposal Found in Western Canada Where Subsoil is Nonabsorbent, Where There Is Scarcity of Watercourses and Where Frost Penetrates Deeply Into the Ground

Report presented by M. M. Seymour, Commissioner of Public Health, Saskatchewan, and Hon. G. Langley, Minister in Charge of Public Health

While the deep system is the only one which this Bureau can guarantee against failure during the winter months investigation has shown that septic tanks and absorption fields may be operated at shallow depths if certain requirements are rigidly observed. These requirements are:—

1. The absorption field, whether shallow or deep, must be constructed in ground which will absorb water. The more absorbent the soil the less danger of freezing.

The surface of the liquid in the septic tank must not be higher than the original ground level. In some instances the sewer connection has been brought from the house above the ground line in an effort to provide a shallow absorption field and the practice has invariably been accompanied by the freezing of the liquid in the tank.

3. The septic tank and all pipe lines, manholes and field tiles must be covered with a layer of straw at least 12 inches in thickness during winter months:

4. The tank and absorption field must be kept in continuous use throughout the winter. If the house is left vacant for a few days the system will freeze and be useless until the frost leaves the ground.

Discharge of Effluent on the Ground Surface

Where the ground is incapable of absorbing liquid the only practicable system of disposal is to pump the effluent from the septic tank and remove it to some distant point, where it may be discharged on the ground without giving offence.

This is the only system permissible for the disposal of sewage from houses situated within the limits of cities, towns or villages and which are not connected to sewerage systems.

Sewage Pump Well

The effluent from the septic tank should flow into a pump well which is designed to hold at least one week's flow of sewage (See Figs. 3 and 4 and accompanying table. In a household of six the minimum capacity of the pump well would be 180x7, or 1,260 gallons or a tank 6 ft. by 6 ft. by 6 ft. deep. The liquid may be pumped from the tank by hand or by power as desired.

In towns and villages the council should provide a tank wagon and undertake the regular emptying of all tank effluents.

In rural districts the effluent should be discharged on the ground at a point as far removed from the house as

practicable, and in no case nearer to the house than 100 feet.

During the winter months this distance should be considerably increased, for frozen effluent will accumulate on the ground and cause a serious nuisance when the frost goes.

Location of Sewage Pump Well

The sewage pump well and septic tank should be situated at least 50 feet from the house. The drain from the house to the tank should be four inch vitrified pipe with cement mortar joints laid carefully at a grade of 1 in 40 or a fall of approximately $\frac{1}{4}$ of an inch to the foot.

Vegetable Gardens

The question has been asked as to whether it is safe to eat vegetables which have been grown on soil irrigated by a septic tank effluent.

It is only safe if the vegetables have been cooked. Those which are eaten raw, such as radish and lettuce, should not be grown on such areas.

Distance of Sewage Pump Well and Absorption Field From Water Supply

It is impracticable to state any minimum distance from an underground water supply at which it is safe to discharge sewage on or into the soil. The sewage disposal system and the well should be as far removed from each other as possible and in no case should a septic tank effluent be discharged on or in the ground within 100 feet of a well or other water supply.

OPERATION INSTRUCTIONS

Septic Tank

The scum which gathers on the surface of the tank should not be disturbed unless it exceeds 12 inches in depth, when part of it should be removed. The scum by excluding light and air from the liquid, provides conditions under which the bacteria multiply on its under surface and in the solids which settle to the bottom of the tank. When the solids in the base of the tank reach a depth of 15 inches they should be removed and ploughed into the ground. This will necessitate pumping out the tank once or at the most twice yearly.

Syphon Chamber

Before starting the system the syphon must be filled with water. The manhole cover on the syphon chamber should be lifted occasionally and the action of the syphon examined.

If the flush is not acting properly the bell of the syphon should be removed, the syphon filled with water and the ball replaced.

Sewage Pump Well

A float with indicating rod projecting through the roof of the pump well can easily be arranged to show when the well requires emptying.

The sewage should not be allowed to rise higher than a level which is six inches below the overflow from the septic tank.

Any solids or scum which may be present in the pump well should be removed when the septic tank is being cleaned out.

Care should be taken to prevent fouling of the ground below the pump discharge. A watertight chute or pipe should be used to convey the liquid to the wagon or to the point at which it is discharged on the ground.

Absorption Field

The cover on the distributing manhole should be lifted at regular intervals and the operation of the system noted.

Protection Against Frost

Not later than October 1 of each year all pipe lines, field tiles, manholes and tanks which are less than seven feet below the surface should be covered with a layer of damp pressed straw 12 inches thick.

This layer should extend four feet on each side of tanks and pipes.

Manure must not be used for this purpose; not only is it insanitary, but it will not protect the ground sufficiently against frost.

General Conclusions

The conclusions arrived at from a study of the information embodied in the foregoing pages may be stated briefly as follows:—

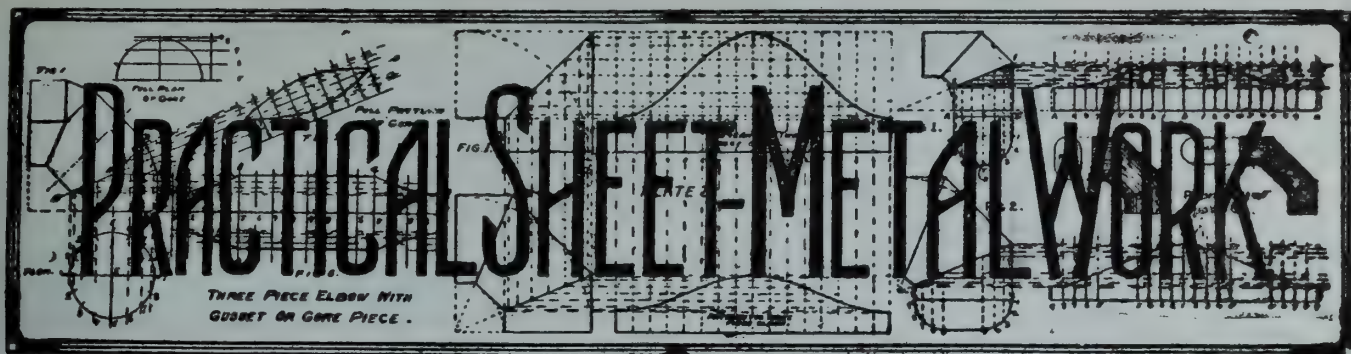
1. The cesspool is an obsolete and unsatisfactory method of sewage treatment or disposal. The construction of cesspools is contrary to law.

2. No matter what means of final disposal of the effluent are adopted, a septic tank should be built in every case for the treatment of sewage, where there is no connection to a public sewer.

3. A septic tank will remove the greater part of the solids from the sewage and so lessen its offensiveness. These solids which remain in the tank will accumulate and will require to be removed by hand once or twice yearly.

4. The effluent from a septic tank is just as dangerous to health as the raw sewage discharged from the house.

(Continued on Page 24)



Patterns for Wash Boiler Cover

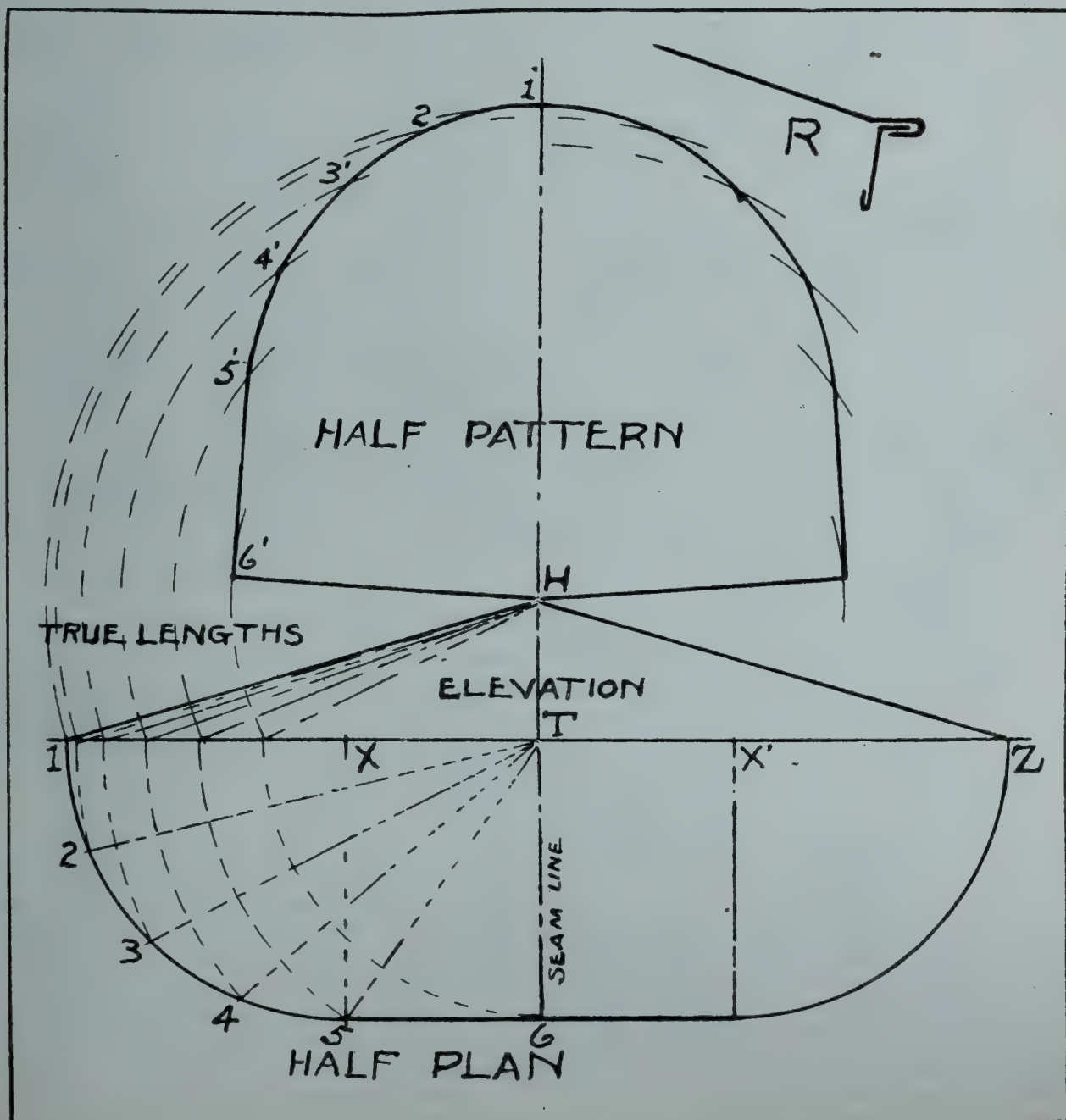
A subscriber wishes to have a pattern for wash boiler cover according to sketch submitted. The drawing will give the strict geometrical treatment and can be applied to any size design

of cover met with. The same method also holds good for making oval or round cornered pan covers as used for steam tables and the like.

Let 1-Z be the length of the boiler.

And in making covers it is well to always go according to the measurements of the bottom because the top is very liable to be out of shape.

(Continued on Page 24)



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Plumber and Steamfitter of Canada

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No. 13

FUTURE OF PLUMBING PRICES

EVERYONE is interested in the probable course of prices in the near future. For some years prices have been a very interesting feature, since the rapid rise to unprecedented levels during the war years and the steady decline evident since the armistice was signed. The recent trend has been a gradual readjustment to lower price levels, and interest in the probable course of prices is heightened by predictions from some quarters that the process will not be completed until pre-war levels are returned.

Sanitary Engineer has secured some interesting views on this topic. A prominent wholesaler and banking official is of the opinion that in basic iron and steel commodities pre-war prices will return, the process of returning to be largely governed by the extent of the discomforts of the readjustment period. Already prices on dairy and some agricultural products are down to 1914 levels or below, but the manufactured products have been maintained chiefly on account of high overhead costs, labor costs and freight rates. The present condition of decreased production is not conducive to lower prices as costs are raised as result. Plant extensions were made in many cases during the recent active periods and this all results in a higher rate of overhead. It is expected that this condition may be offset to some extent by the perfection of industrial processes which may lower costs without necessarily lowering the wages of labor. Of course labor costs will also reduce as the period of readjustment progresses, but no one wants the acute condition likely to result from a sudden drop in labor's earnings while the expense's of the laboring man are still as high as at present. One of the most serious impediments to lower labor costs at present is high rentals and it is unlikely that this conditions will improve until the housing shortage is relieved, and until the building industry is again encouraged as a means of profitable investment. Landlords will not be inclined to lower rents as long as conditions prevail under which they could just as well withdraw their investment from building properties and place it to good advantage in gilt-edged securities paying good returns, as at the present time.

Recent tax and tariff legislation was thought, by this official, to be a further hamper to imports and therefore to trade generally at this time. While this and other factors tend to restrict trade and to maintain high production costs, it was thought that the other factors which will operate naturally, will tend to continue the process of readjustment until price levels of 1914 are again returned.

MINOR OFFICIALS AND TINSMITHS

IT is quite an average thing to find some merchants who cannot figure out their responsibility under the Government's tax legislation, but it is a sad commentary on the legislation that local collectors of Customs and Inland Revenue do not in many cases fully understand the law themselves.

In connection with the much debated case of the responsibility of the tinsmith, it has clearly been set forth in Sanitary Engineer on numerous occasions that the tinsmith who makes up articles sold directly to the customer is not liable as a manufacturer. Some merchants, acting upon this advice, have been informed by local collectors that they are mistaken, that they are manufacturers and should take out license as such and make returns of sales tax collected on such as is "manufactured." One collector recently attempted to define the law himself, interpreting it as classing a tinsmith as one who does nothing but repair work and soldering, while classing a sheet metal worker who does furnace work, makes up eavestrough, etc., as a manufacturer.

This ruling is erroneous and the correct ruling stands as outlined in Sanitary Engineer, namely that any tinsmith who makes up articles for sale directly to customers is, for purposes of tax legislation, a retailer.

In order to clear up this matter a definite ruling has been secured by Sanitary Engineer direct from the Deputy Minister of Customs and Inland Revenue, as outlined elsewhere in this issue. This official points out that if there is any dispute tinsmiths may write the word "abandoned" on the tax papers and return them to the department. The ruling of the local collectors is not final so that if the tinsmith has a good case and believes himself to be a retailer under the act he need not be scared into taking out a manufacturer's license by any local official, but take no action except to refer the matter to higher authority.

TWENTY THOUSAND Farmer's Account Books have been supplied to Canadian farmers by the Commission of Conservation for the purpose of keeping records of farm accounts. This is evidence of greater business efficiency on the part of farmers and it should indirectly help the plumbing and heating trades in rural districts.

THE ADOPTION of a production schedule, as outlined in this issue, should help to clear the plumbing trade of the criticisms levelled in the past concerning the unbusiness like methods of operators. Under this plan the customer who thinks he is being overcharged for work done can be shown the schedule which outlines a complete day's work, as laid down by the master plumbers as a body.

Montreal Plumbers Adopt Schedule

Production Schedule Arranged Showing What Constitutes A Day's Work

—Need of Suitable Standard Felt For Some Time

THROUGH a mutual agreement between the Master Plumbers' Association of Montreal and the plumbers' section of the National and Catholic Unions the wages for the present season provide for 75 cents per hour for first class mechanics and for less efficient and experienced, 70 cents and 60 cents per hour respectively. To ascertain what constitutes a day's work the following schedule was carefully drawn up and agreed on by both parties, thus a clear understanding is reached in this direction, and the men can be graded accordingly.

Working out of this schedule of work was an interesting task and the acceptance of it as a basis indicated the desire of both parties to provide for the present building season.

That great interest has been taken from all sides in the new system to be adopted here is manifest by the large number of enquiries received in the past few weeks by the Secretary of the Association.

The schedule is as follows:—

MEMORANDUM of what the Master Plumber's Association of Montreal considers a fair and reasonable production from journeymen plumbers and steamfitters:

PLUMBING:

Erecting cast iron underground drains, less digging and back-filling, allowing a fitting at an average of every ten feet:—

3"	Number of feet per 9 hours	50
4"	" " " " " "	45
5"	" " " " " "	40
6"	" " " " " "	35
8"	" " " " " "	25

Erecting upright stacks of Medium Soil Pipe, allowing a fitting at an average of every ten feet:—

2"	Number of feet per 9 hours	70
3"	" " " " " "	60
4"	" " " " " "	50
5"	" " " " " "	45
6"	" " " " " "	35
8"	" " " " " "	25

Erecting Medium Soil Pipe Back Vent Stacks, allowing a fitting at an average of every ten feet:—

2"	Number of feet per 9 hours	70
3"	" " " " " "	60
4"	" " " " " "	50

Erecting Wrought Iron Stacks of soil pipe for Durham System, allowing a fitting at an average of every ten feet:—

4"	Number of feet per 9 hours	30
4½"	" " " " " "	27
5"	" " " " " "	25
6"	" " " " " "	20

Erecting Wrought iron back vent pipe, allowing a fitting on an average of every ten feet:—

1¼"	Number of feet per 9 hours	60
1½"	" " " " " "	55
2"	" " " " " "	50
2½"	" " " " " "	45
3"	" " " " " "	40
3½"	" " " " " "	37
4"	" " " " " "	35

Erecting Upright Stacks of galvanized iron water pipe, allowing a fitting at an average of every ten feet:—

¾"	Number of feet per 9 hours	100
1"	" " " " " "	90
1¼"	" " " " " "	75
1½"	" " " " " "	70
2"	" " " " " "	60
2½"	" " " " " "	45
3"	" " " " " "	40
3½"	" " " " " "	35
4"	" " " " " "	30

Time for roughing in a three piece bath room, with all waste, hot and cold water, and back vent, complete, using cast iron soil pipe for hot and cold water, at an average distance from the stack of three feet:—

20 hours—man and helper.

Allow for setting up this bath room with standard enamelled iron lavatory on brackets, standard enamelled iron bath, and low down closet combination:—

15 hours—man and helper.

Time for setting up same bath room with porcelain pedestal lavatory, porcelain bath, syphon W.C. with flushometer valve:—

30 hours—man and helper.

Time for roughing in the same bath room, using Durham System:—

30 hours—man and helper.

Time for setting up the same bath room with enamelled iron fixtures, using Durham System:—

30 hours—man and helper.

Time for setting up the same bath room with porcelain fixtures, using Durham System:—

30 hours—man and helper.

Time for roughing in waste, hot and cold water and back vent for a kitchen or pantry sink, at an average of ten feet from the uprights:—

10 hours—man and helper.

Time for setting up this sink:—

5 hours—man and helper.

Allow for roughing in of waste, back vent, hot and cold water, for one pair of wash tubs, at an average distance from the connections on the drain of ten feet:—

12 hours—man and helper.

Time for setting up this pair of wash tubs, from the floor line up:—

10 hours—man and helper.

Allow for the roughing in of porcelain or enamelled iron slop sink on pedestal, waste, hot and cold water and back vent, at an average distance from the upright stacks of 5 feet:—

9 hours—man and helper.

Allow for the setting of same from the floor line up:—

5 hours—man and helper.

All the above work is figured on the basis of the way being clear for everything, that is, thimbles and sleeves, being provided in concrete work in concrete construction, and cutting being done by others when wood construction.

HOT WATER HEATING:

Time for setting the different sizes of furnaces after foundation is made:—

No. of hours man and helper for boilers No. 1 to No. 4..... 4 hrs.

No. of hours man and helper for boilers No. 4½ to No. 6..... 6 hrs.

No. of hours man and helper for boilers No. 6A to No. 8..... 8 hrs.

Time for erecting hot water mains in pairs on ceiling only allowing for a fitting at an average of every ten feet:—

1"	Number of feet per 9 hours	90
1¼"	" " " " " "	85
1½"	" " " " " "	70
2"	" " " " " "	50
2½"	" " " " " "	40
3"	" " " " " "	30
3½"	" " " " " "	25
4"	" " " " " "	20

Time for erecting branches across the ceiling and through the ground floor with valve and elbow on, the proper height to receive radiator:—

¾"	Number of branches per 9 hrs.	6
1"	" " " " " "	5
1¼"	" " " " " "	4
1½"	" " " " " "	3

Time for erecting a pair of risers from 3" to 1", allowing a fitting at an average of every ten feet:—

1"	Number of feet per 9 hours	65
1¼"	" " " " " "	55
1½"	" " " " " "	40
2"	" " " " " "	35
2½"	" " " " " "	25
3"	" " " " " "	20

Number of branches that can be run from these risers to the various radiators, at an average distance from the riser of 8 feet, with branches brought through the floor the proper height to receive elbow and valve for the radiator:—

¾"	Number of branches per 9 hrs.	6
1"	" " " " " "	5
1¼"	" " " " " "	4
1½"	" " " " " "	3

(Continued on Page 34)

Features of Electric Furnace

Many Advantages claimed for Electric Furnace for Melting Metals Compared with Fuel Fired Furnace—Temperature Always under Control—Eliminate occluded Gases in Metal

(By Courtesy Empire Brass Mfg. Co. London, Ont.)

AN innovation among manufacturers of plumbers' brass goods is the recent installation by the Empire Brass Mfg. Co., London, Ont. of an electric furnace, for melting metals. Certain advantages are claimed for the process of melting by electricity as compared with fuel fired furnaces and some aspects of the process will be discussed briefly herewith.

The furnace is cylindrical in shape 7 feet in diameter; insulated with infusional earth; and lined with highest grade refractories. The hearth is a shallow bowl, holding 1500 to 2000 pounds of metal. The heat is generated within a carborundum trough supported on piers and filled with crushed carbon material. A relatively low voltage current passes through this carbon material, bringing the trough and carbon to incandescency, similar to the filament of a huge incandescent lamp. This heat is radiated from the bottom and sides of the trough to the hearth, and from the top of the trough to the roof of the furnace, and reflected to the hearth.

The metal lying on the shallow hearth is therefore melted by a soft radiant heat uniformly distributed.

The temperature is under absolute control of the operator, as it is only necessary to increase or decrease the amount of power put into the furnace by shifting a switch. A pyrometer located in the furnace insures the desired pouring temperature, which of course may be changed to meet any alloy, and duplicated at will.

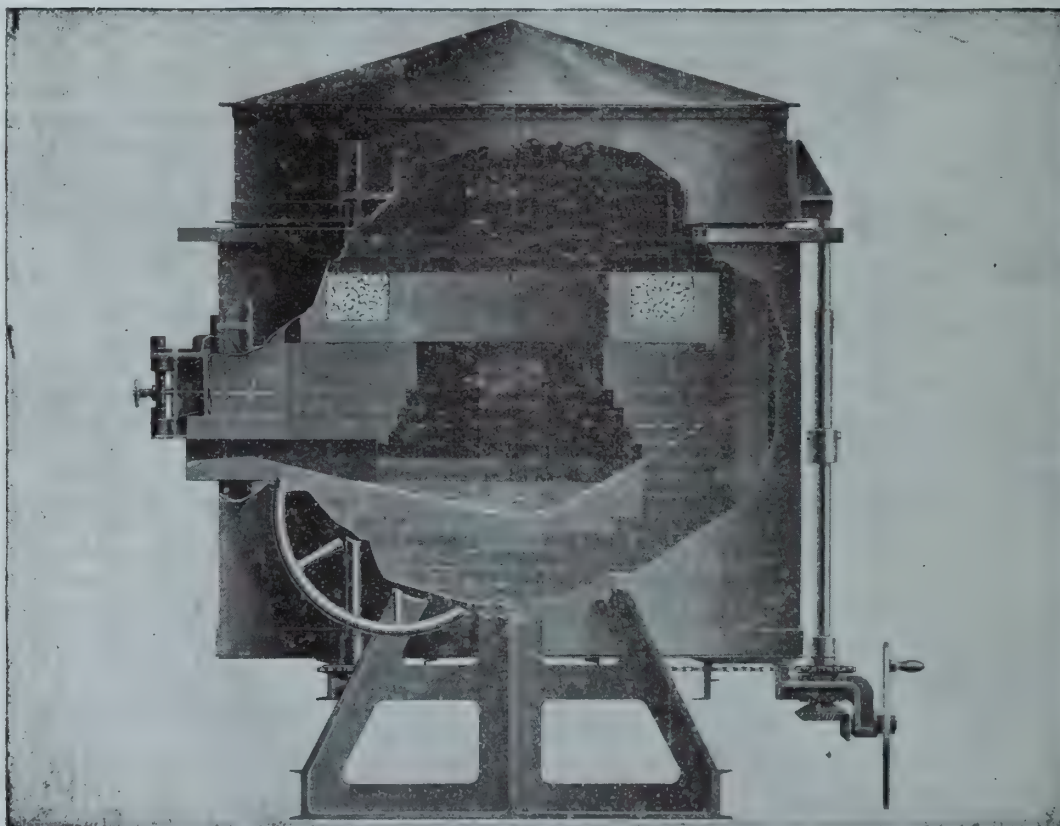
The heating medium employed in this type of furnace, consisting of a large source of crushed carbon at incandescency, results in a reducing atmosphere in the furnace chamber. This practically eliminates all metal loss due to oxidation or volatilization. After the furnace has been charged, and the tight fitting plug type door closed, the oxygen admitted is rapidly consumed by the incandescent carbon long before the metal starts to go into a molten state. The furnace is poured with the door closed by tilting and pouring through a small opening below the charging door, which is plugged up tight during the entire melting period.

Inasmuch as there is practically no metal loss, any analysis may be obtained in the castings merely by charging the proper proportions into the furnace.

The elimination of any occluded gases in the metal; the absolute control of the analysis, melting time and pouring temperature; result in the production of castings which cannot be equalled as to quality or uniformity in other types of melting equipment.

This furnace has a capacity of 1500 pounds and is guaranteed to melt 750 pounds per hour.

An Electric Furnace of proper design makes it possible to obtain and duplicate at will any alloy desired. The pouring temperature and melting time is under exact control of the operator at all times. The atmosphere of the furnace is reducing and nonoxidizing, and always the same. The possibility of contamination of the metal from furnace gas is entirely eliminated, as there is no fuel, and therefore, no gas.



News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

WESTERN ONTARIO NEWS

Williams and Roberts of London, Ont., were awarded contract for plumbing and heating for two new dwellings costing \$15,000 for W. T. Spettigue, 261 Hill St., London.

City Engineer, Harry Brazier, London, Ont., wants prices immediately on four sewage pumps, electrically driven and controlled, each 1500 gallons capacity per minute.

Work will proceed shortly at Petrolia, Ont., on a new pump house for the Canadian Oil Co.

The Hunt Plumbing Co., London, has plumbing contract, and George Rutherford the heating, for new residence for W. Snell, 917 William St.

Richard Williamson, Watford, Ont., wants prices on heating, plumbing and electrical work in connection with new \$5000 residence.

The Fireproof Warehousing Co., of London Ont., W. Webster, manager, is preparing plans for a new warehouse to cost \$100,000 and wants prices on heating, plumbing and electrical work.

A. E. Jamieson, Forest, Ont., wants prices on hot air heating, plumbing and electrical work for new \$5000 dwelling to be erected this summer.

Alex. Milne, of London, Ont., was awarded contract for installing hot water heating system and plumbing in new jewelry store of N. Agranove.

Joseph Moore, R. R. 7, Forest Ont., wants prices on heating and plumbing for new \$5000 dwelling.

F. A. Hough, Amherstburg, Ont., wants prices on heating, plumbing and electrical work in connection with remodelling building for a duplex.

Mrs. George Powell, 334 Queen's Ave., London, wants prices on heating, plumbing and electrical work for new \$12,000 duplex.

John Peart of Cayuga, Ont., plans to completely rebuild residence and wants prices on heating and plumbing.

Noble and Rich, London, Ont., have been awarded contract for plumbing and heating in connection with new \$50,000 garage for the Car Owners Garage Co.

E. Hill, 58 Windsor Ave., London, wants prices on heating, plumbing and electrical work for new \$5000 dwelling.

Fred Merrill, Port Lambton, Ont., is preparing plans for new pavilion to be erected at a cost of \$25,000.

Prices are wanted on hot air heating and electrical work in connection with new \$15,000 church being erected by the Baptist congregation at Salford, Ont., Rev. C. H. Innes, pastor.

A Canadian branch factory of the Peter Smith Heater Company of Detroit is to be located at Walkerville,

The firm has secured temporary premises in the Walker Power Building but plans to locate in its own new factory later.

Plans are to be prepared at Springfield, Ont., for a new six roomed public school to cost \$40,000, T. Leeson, chairman of Trustees.

W. T. Wilkinson wants prices on heating and electrical work for new store to cost \$9000 to be erected at Amherstburg, Ont.

CONVENTION OF THE CANADIAN SANITARY ASSOCIATION

The Annual Convention of the Canadian Sanitary Assn. will be held this year at Ottawa, Ontario, on September 6th, 7th and 8th.

It is tentatively proposed to give the first day for papers and addresses by local gentlemen, the second day for papers by members and the third day for executive business. Any member who has or will prepare a suitable paper is asked to communicate with the Secretary, Alex. Officer, City Health Dept., Winnipeg.

E. H. RUSSEL RETURNING FROM AUSTRALIA

London, Ont.—Word has been received here that E. H. Russell, who early in the Spring disposed of his residence and plumbing business here and started for Australia, where he intended to reside, is returning. It is understood that he and his wife were unable to stand the intense heat, the temperature according to letters received being 125 degrees often. Mr. Russell was very prominently identified with the plumbing trade not only in London, but as an officer of the Canadian Society of Sanitary and Heating Engineers and it will be good news to a wide circle of friends in the trade that he is returning. Letters received recently indicate that the family expects to reach Canada again some time in August.

BUSINESS CHANGES

Smiths Falls, Ont.—Herbert D. Moss has taken over the plumbing business for some time conducted by Alfred Gould, at Smiths Falls, and will add a tinsmithing shop department.

Kingston, Ont.—The Dickie Construction Company, of Toronto, has been awarded the contract for the construction of the new service building at the General Hospital. The contract price is \$94,984.

PLUMBERS TAKE ON NEW LINES

Wallace and Roberts, Tinsmiths, Plumbers and Heating Contractors, Bassano, Alberta, have taken over the agency for the Twin City line of tractors, Threshers and Motor trucks for the Bassano district.

NEW FIRMS

Mr. Soper of Calgary has opened up a plumbing and heating business at High River, Alberta, under the name of the High River Plumbing and Heating Co.

TO INSTAL CENTRAL HEATING PLANT

Kingston, Ont.—The governors of the General Hospital have decided to install a central heating plant in conjunction with Queen's University. The hosiery mill site has been acquired and the central plant will be erected as soon as the present building is torn down. The power house will be connected with the hospital and the university by means of a tunnel. In addition to the power house, there will be a hydraulic laboratory, and here the students in science at the university will receive their practical work in mechanics, electricity and mechanical engineering. The hospital laundry will also be located at this site.

CATALOGS AND BOOKLETS

"New Idea" Pipeless Furnace

One of the recent folders issued by the Hamilton Stove and Heater Company, specially illustrates the "New Idea" pipeless furnace. As the name indicates, the feature of this heating apparatus is the fact that no pipes are required, and stacks, cold air returns, and similar installations are eliminated. The duplex grate, and the heavy flanged one-piece cast iron fire-pot, are also other points emphasized by the manufacturers. The folder is adequately illustrated showing the special designs and the manner in which the "New Idea" furnace is intended to cover the heating problem of any small building, either store, home or other structure.

Business Comes if Pr



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And because people
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There are many prospec
modern sanitary convenience
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with them.

These prospects can be
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*The Port Hope Sanitary
co-operate with you in your
tive cuts like those shown
will send for them.*

There is good business
necessary to go after it.



Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms
119 KING ST. EAST

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405 T

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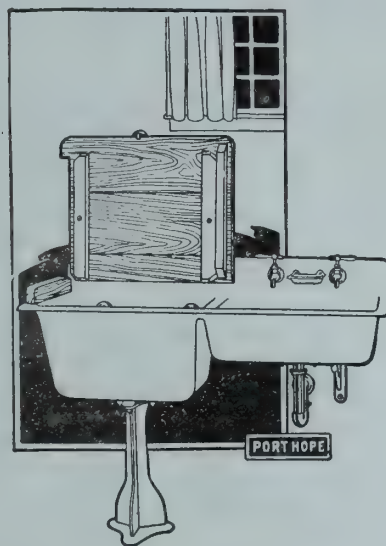
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home but haven't got further than
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hrough your local newspaper and if
will arouse the interest of these
you to make many sales.

*Manufacturing Company Limited will
ng by furnishing you with attrac-
suitable advertisements free if you*

d everywhere but this year it is



g. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

L'Amelioration des Conditions Sanitaires de Quebec

Travail Fondamental des Plombiers Maitres de Quebec Dans l'Organisation de l'Association—Lois Locales Sanitaires pour la Cite de Quebec le resultat de l'Activite des Plombiers—Marchands Locales dans les Autres Metiers Pourraient Acheter Articles a Plombage au meme prix que le plombier

Rapport de E. G. Brousseau, Vice-president de la Societe Provinciale de Quebec au 24me Convention Annuelle de la Societe Canadienne de D. S. et H. E. a Quebec

Le vice-président provinciale vous offre une bienvenue cordiale à notre capital. Son ambition est que le désir exprimé dans la lettre signé par M. le Président Mahoney et M. le Secrétaire Frankland, que la convention soit la plus grande et la meilleure dans l'histoire de cette Société Canadienne, serait réalisé. Si, de temps en temps, nous nous souviendrons que nous sommes responsables pour cette société d'hommes d'affaires, et si nous nous déciderons à pousser à la roue chaque fois que nous rencontrerons des nouvelles difficultés dans ce cas, et dans ce cas seulement, serions nous fidèles à notre métier.

Ayant en vue cette condition d'affaires tant à désirer, vous soumetts que le programme de n'importe quelle convention devrait être toujours arrangé conformément à cette idée, afin qu'on pourrait savoir plus à l'avance les questions qui doivent être discutées et on pourrait dans ce cas, les traiter avec plus d'intelligence. Et puis l'association serait reconnue comme vive et énergique comme il devrait être. Celle-ci est mon opinion et je demande être convaincu si j'ai tort.

On dira peut-être que ceci n'est pas un rapport provincial. Je l'admets mais comme j'ai lu quelque part que j'étais membre de l'exécutif et comme pendant toute l'année je n'ai pas eu l'occasion d'exécuter les devoirs de la position, je n'ai pas voulu manquer l'occasion de remplir mes obligations.

Avant de donner mon rapport comme vice-président provinciale, je voudrais bien faire une suggestion pour le bien-être de cette Association.

La suggestion est que personne n'accepterait une position comme officier de la Société sans qu'il se décide à l'avance qu'il peut devouer un peu de son temps pour faire le travail nécessaire.

À l'égard du province de Quebec, quand ce rapport sera lu, il est bien possible que Quebec aura son Association provinciale à lui, mais, au moment

que j'écris, elle n'est pas encore organisée. J'espère, cependant, que si les nouveaux membres tiennent leur promesse, Montreal, Quebec, Three Rivers, St. Hyacinthe, Sherbrooke et Levis, s'auront réuni pour former "L'Association Provinciale de Quebec" depuis longtemps attendu.

Qu'est-ce que nous avons fait à cet égard ou plutôt peut-être je devrais dire qu'est-ce que j'ai fait, parceque je veux engager personne autre sur cette affaire vu que tant peu a été accompli.

Comme mes prédécesseurs j'ai écrit plusieurs lettres aux membres principales du métier dans chaque cité et en même temps je leur ai envoyé un rapport de la dernière convention avec une brochure de mes lectures sur Sanitation. Malheureusement je n'ai pas reçu des réponses. J'ai un par conséquent que cette méthode n'était pas effective pour les intéresser. Et puis j'ai essayé les atteindre par le moyen des amis journalistes. Mais je n'ai pas réussi. Enfin je me suis décidé les voir et les convaincre de la nécessité de se joindre à une Société telle que la nôtre. Mais comme il m'était impossible à ce moment à quitter la cité, M. U. F. Drouin, notre secrétaire, un homme très capable, qui heureusement était avec moi était envoyé les voir. Il est rentré avec six applications de Trois Rivières, trois de St. Hyacinthe et quatre de Sherbrooke; et en addition une promesse que chacune de ces cités serait représentée par au moins deux délégués, un résultat que j'ai trouvé très satisfaisant.

Deux Questions Importantes.

À l'égard de la cité de Quebec, il n'y a que deux questions d'un intérêt supérieur auxquelles j'appellerai votre attention dans ce rapport, c'est-à-dire, le manque de protection fournie au métier par les fabricants et les marchands en gros, et le manque des Lois Locales Sanitaires effectives. Quant au premier sujet, j'ai l'intention de m'en occuper aussitôt que je puisse intéresser suffisamment les membres locales à se réunir et à discuter à fond la matière. J'espère que ça sera bientôt, car tout-le-monde sait bien, par toute la cité, que n'importe quel marchand, soit épiciers ou marchand de drap, peut acheter du marchand en

gros au même prix que le plombier, pouvant qu'il dise qu'il peut le procurer d'un autre marchand aux prix du plombier. Il n'est pas nécessaire qu'il le prouve, sa déclaration suffit. Tels conditions sont très injustes au plombier, et en même temps elles expliquent pourquoi dans plusieurs cas le propriétaire d'une structure à Quebec demandera des soumissions, avec la reservation qu'il lui-même fournira les articles l'installation à plombage.

Ce n'est pas seulement les marchands de Quebec qui sont coupables à cet égard, quelques uns en dehors sont également, si non plus, coupables, et dans la butte pour les contrats pour les constructions publiques ils vendront de la marchandise directement aux propriétaires pas seulement au prix auquel le plombier a droit mais même à un réduction en quelque de 25 pour cent moins.

Le Bureau d'Extension, comme je le comprend, n'était pas établi par les fabricants et marchands en gros avec cette intention. Je suis, toutefois, content de dire que la plupart des fabricants et des marchands en gros protègent les plombiers et ces maisons devraient obtenir notre appui.

Lois Sanitaires.

Quant au second sujet, les lois sanitaires, la cité de Quebec, comme une grande nombre d'autres cités, sera bientôt réglée par des Lois Locales Sanitaires bonnes et pratiques. Je vais essayer vous donner une idée de ce qui a été fait pour convaincre le peuple de Quebec et notre conseil municipal de la nécessité de ces lois, et en même temps je vais vous dire comment nous avons réussi à obtenir les bons résultats que nous avons aujourd'hui.

Il m'est venu l'idée il-y-a dix ans et je l'ai avancé à toute occasion possible jusqu'à cinq ans plus tard quand quelques directeurs du Quebec Builders' Exchange, qui étaient entrepreneurs générales se sont décidés d'étudier la question et de nommer une comité s'est assemblé deux en trois fois mais il n'a rien fait.

Pendant deux années j'ai resté tranquille, et puis "The Civic Progress Committee" était formé par un de nos citoyens les plus estimés, le feu Eng-Julien. Ce comité était composé de deux repré-

sentants de chaque association de Québec et j'étais un des représentants des constructeurs de Québec sur ce comité.

Le premier article sur notre programme était le projet pour bâtir des maisons saines et salubres avec l'emprunt du gouvernement fédéral. Aussitôt qu'ils ont commencé à parler des maisons salubres à Québec j'ai dit "Vous ne pouvez bâtir des maisons salubres sans plombage sanitaire."

Ils n'ont pas fait attention à ce que j'ai dit avant que je l'avais répété au moins vingt-cinq fois. Et je suppose qu'ils ont dû croire que j'étais fou, car ils m'ont demandé ce que j'ai voulu dire. Ma réponse était:

"Donnez moi à peu près une heure pour vous expliquer, et vous me comprendrez."

J'étais permis de parler à l'assemblée suivante. A cette occasion j'ai donné ma première lecture sur "Sanitary Plumbing in Quebec." Il faut que je vous dise qu'ils étaient étonnés à entendre que le plombage n'était pas seulement une nécessité pour chaque cité moderne, mais qu'il était même un danger à la santé, quand il n'était pas fait en accord avec des principes scientifiques.

Une décision demandant que les autorités civiques préparent une loi locale qui accord avec ma lecture était approuvée et envoyée à l'Hotel de Ville mais le Conseil Municipal ne l'a pas trouvée nécessaire et rien n'était fait jusqu'à six

mois plus tard quand j'étais invité par le Rotary Club à donner une lecture sur la nature de mon métier; et encore une fois j'ai parlé sur Sanitary Plumbing. Cette deuxième lecture était publiée, et par le "Sanitary Engineer," et par "The Sanitary and Heating Journal," et je veux remercier tous les deux journaux pour leur coopération splendide.

Le Rotary Club de Québec a envoyé immédiatement une délégation à l'Hotel de Ville et M. le Maire a promis que le Conseil Municipal prendrait action sur l'affaire presque immédiatement. Mais trois mois sont écoulés et je n'ai rien entendu sur le sujet. Et puis avec la coopération de The Quebec Builders' Exchange nous avons publié 500 brochures de mes deux conférences et nous les avons envoyées à tous les hommes importants à Québec, les Conseillers et les Officiers de la Santé inclus.

Celui-ci a fait rouler la machine qui à présent court à grande vitesse.

En conclusion, je vous lirai l'opinion de l'éditeur du Québec Telegraph, May 27, 1921, qui donne exactement la position telle qu'elle est à présent.

M. Brousseau à ce point a lu l'article en question qui exprimait la nécessité pour les Lois Locales Sanitaires. Et puis il a continué:

Messieurs, cet éditeur a raison, je suis occupé à présent à préparer cette loi. Je le leur donnerai ce mois-ci, et avant l'automne Québec aura, j'en suis sûr, une

système moderne de plombage civique.

Or, membres du métier, j'espère que je ne vous ai pas ennuyés avec tous ces détails sur la question des lois locales de plombage. Si je l'ai fait, je le regrette. Mais l'idée que j'avais était de vous faire voir que si avec un peu d'énergie et une bonne connaissance du sujet un homme, sans influence, tout seul, peut obtenir un tel résultat, qu'est ce qu'une société tel que le Canadian Society of Domestic Sanitary and Heating Engineers ne pourrait pas accomplir si ils s'en tiennent à leur mot et travaillent avec l'idée "Tous pour Chacun, Chacun pour Tous?"

E. G. Brousseau,

Vice-Président Provincial de Québec.

OFFICIERS DE LA SOCIÉTÉ PROVINCIALE DES D. S. H. E. DE QUÉBEC, 1921-22

Président, E. Matte, Québec
Vice-Président, J. C. Hunt, Québec
Secrétaire, J. L. Letart, Québec
Présidents des Comités
Sanitaire, E. C. Brousseau
Legislative, F. Gingras, Québec
Heating and Ventilating, J. A. R. Seguin, Ste. Hyacinthe
Apprentissage, T. Bissonette, Lévis
Essay, M. Germain, St. Romuald
Auditeurs, MM. Carow, Delorme et Landreville.

Association Provinciale de Québec Etablie

Demarche Progressive Fait par les Ingenieurs Sanitaires et de Chauffage dans le Province de Québec—Pour Ameliorer les Conditions Sanitaires de la Province.

Au premier jour de la 24^{me} convention annuelle de la Société Canadienne des D. S. et H. E. de la cité de Québec, avant l'ouverture formelle de la convention l'Association Provinciale de Québec était constitué et admise comme membre de la Société Canadienne.

L'addition de cet anneau important à la société de la Dominion ajouterait une influence considérable au corps maternel et rendra bien plus effectif son travail par tout le Canada.

Sans doute, une des premières entreprises de la nouvelle société sera l'examination des conditions sanitaires dans les villes et les cités du province, et l'invitation de législation qui insistera sur la nécessité d'installer des arrangements convenables et sanitaires dans toutes les maisons du province.

Il est certain que le progrès de l'art de l'ingénieur sanitaire est largement responsable pour les campagnes qu'on

fait aujourd'hui pour la santé publique. Par exemple, une grande partie des batiments dans la cité de Québec était construite avant les jours du plombage moderne, et ces batiments ont besoin de renouvellement selon les demandes de cet plombage moderne.

On doit donner crédit aux membres du métier par tout le province pour avoir organisé une association qui prendra des mesures actives pour obtenir législation qui gardera la santé de la publique et qui aura l'effet d'élever la position du métier sanitaire. On doit, en même temps, donner crédit à M. E. G. Brousseau de Québec, président du comité législatif de la nouvelle société provinciale, pour les efforts splendides qu'il a faits afin d'obtenir l'appui actif des membres importants du métier dans la formation de la nouvelle association.

M. Frank Carrel, propriétaire du Québec Telegraph a félicité en même temps les membres, et la nouvelle organisation.

Il a complimenté le métier en indiquant que lui même, avec d'autres promineurs dans les affaires, il avait essayé à obtenir des bons lois locales pour Québec, quoique ses efforts n'avaient pas réussi. Il était content de pouvoir déclarer que des nouvelles lois étaient en course de formation, comme le résultat d'une adresse par M. E. E. Brousseau avant le Rotary Club il-y-a quelque temps.

Les officiers qui dirigeront le travail de la nouvelle association pendant la première année de son existence sont bien choisis pour leurs positions respectives et on attend un résultat très satisfaisant. Si on est permis de juger de l'intérêt démontré par les membres de Montréal et Québec pendant la convention, la nouvelle organisation comprend des membres qui travailleront avec un but définitif et la société provinciale sera bientôt un des plus effectives du Canada.

Patterns for Wash Boiler Cover

(Continued from Page 15)

This is especially so with wash boilers, and by taking measurements from the bottom the cover is made to these measurements and then the top of boiler is reshaped to suit this cover. The only thing care must be taken not to get it too big or too small.

With 1-Z as the length and T-6 as half the width of boiler, we are able to describe the 2 quarter circles on the ends, which will have a radius of T-6 and which is set back as 1-X and Z-X'. Then the side lines we join to meet the arcs.

Divide one-quarter circle in any number of equal parts as 1-2-3-4-5, and from each point, using T as center, describe an arc to the center line of 1-Z.

Observe this answers the same purpose as though we would pick these lines as T-2-3-4-5-6 and set them on the horizontal line in points shown.

Then let H-T represent the rise the cover is to have and the line H-1 and H-Z will be the outline of cover. By drawing light lines to the remaining points in line 1-T, we have the true lengths.

Set one leg of dividers to the apex H and use each of these points in line 1-X as radius, describe an arc indefinitely.

With dividers pick the girth spaces as 1-2 from plan and starting with the center line on arc 1 and 1'; walk from one arc to another as 2' is on the second arc; 3' is on the third arc; 4' is on the fourth arc, etc. Then pick the side line 5-6 from plan and set it as 5'-6'.

Draw lines through all points thus established and you have the outline for pattern. Laps are required to make joints as at R and must be allowed extra as well as the seam along center.

Raising Efficiency of Plumbing Industry

(Continued from Page 12)

which is already created, and this work would be done in event of his existence or not, and he is eating into the vitals of the legitimate business of men who carry large stocks, assume the expense of showrooms, advertise plumbing goods and create business that would not be were it not for his enterprising ways.

How can these conditions be remed-

ied. I hear you ask? By confidence on the part of the plumber and wholesaler in one another, by the co-operation of the two legitimate factions which are essential to the plumbing industry if it is to survive as a business worthy of honest endeavour.

You notice I use the term legitimate. There has developed in the last few years the so-called Manufacturers' Agent, who had no scruples in the manner in which he disposes of his wares. He is, as a rule, on a par with the shoestring plumber. There may be exceptions, I will not argue, but as a rule he is a man without capital, no stock, no office or place of business, nothing at stake, calls on the Trade when business is good, deserts it when business is bad and saves expense money, the fellow who gives you the 5 p.c. confidential discount, suggests something just as good and always looking to substitute fixtures in a specification to the advantage of himself and disadvantage of the consumer. You men know him and are oftentimes pleased to get the extra 5 p.c. but he is a parasite and you know the Trade would be better off without him.

Trade Journals. We can get some of the greatest education from the Trade Journals, but I am afraid too many of us do not read these as we should. Personally, I am a subscriber to four Plumbing Journals as well as three Electrical. Of course it is impossible for me to read all the articles in these Journals, but I always endeavour to give them at least the once over, and if I notice something of particular interest that might be applied to my business with success, I pick these articles to read. In conversing with some manufacturers, I am surprised to learn that many things of interest to the Plumbing Trade in general has been published in these journals and has not been seen by many manufacturers and wholesalers. Now when this circumstance exists, how in the world can these men who are advertising in these Journals expect others to see their ads if they give the Journals the same consideration as the advertiser. Our Trade Journals should be read by Wholesalers, Manufacturers and operating Plumbers.

Cost Price System. Everyman engaged in the Plumbing business in justice to the public, his business and himself should have a cost price system of some kind, for I am satisfied that the difference in prices of tenders or contracts let is not caused by the difference in the gross or net profit as allowed by the different tenderers, but the trouble lies in the fact that we do not get honest costs. Therefore it is essential that we have some means in getting in touch with present market prices in order to overcome this difficulty. This also applies to a **Retail Price System** as well as to the cost system. Of course if we have proper cost there can be very little difference in the retail price of an article.

Trade Extension was lightly touched by merely the mention of a few things such as plumbers carrying an ample stock, showrooms and show-windows, etc., it being impossible for the

speaker to give any time to this as he had to depart to catch a train.

Problems of Sewage Disposal in West

(Continued from Page 14)

5. Where the basement is not drained and the soil pipe leaves the house at a shallow depth the septic tank should be built close up to the house.

6. No septic tank effluent or liquid wastes may be discharged into a creek, river or lake, unless a special permit has been obtained from the Commissioner of Public Health.

7. The discharge of a septic tank effluent or of liquid wastes into the subsoil within the limits of any city, town or village in the province is contrary to law.

8. If the subsoil shows signs of sand or gravel an absorption field should be made and the effluent from the tank disposed of underground.

9. If the subsoil is clay throughout, the construction of an artificial absorption field is useless, and unless a surface outlet is available the tank effluent must be pumped.

10. Septic tanks and pipe lines may be successfully operated during winter at shallow depths if certain requirements noted in this bulletin are observed.

11. A system of sewage disposal, whether surface or underground, should be as far removed from the house and from any source of domestic water supply as practicable.

Notes on Materials and Installation of System

The construction of tanks and pipe lines requires skilled labor.

The plumbing contractor, if he does not specialize in this work himself, will usually undertake to see it properly done.

Glazed fireclay pipes should be laid true to line and to the grades shown on plans. Pipes should be jointed with cement mortar in the proportion of 1 of cement to 2 of clean sand.

Cast iron pipes should be used in place of fireclay inside all concrete sewer line is laid close to the surface cast iron pipes should be used under any roadways or ground that is subject to traffic.

Concrete should be mixed in the proportion of 1 part of Portland cement to 6 parts of clean pit-run sand and gravel, or 1 part of cement to 2 parts of sand and 4 parts of broken stone.

Gravel should be free from alkali and salt water should be used.

Concrete if mixed by hand on a board should be turned over three times dry and three times wet.

Walls and floors should be trowelled to a perfectly smooth finish with a coating of one part of cement to one part of sand.

Distribution manhole may be constructed of 24 inch or 30 inch diameter concrete pipes set on end, if these are available locally.

(Continued on Page 34)

MUELLER DOUGLAS FLUSH VALVE

FOR LOW DOWN WORK

The body is of high quality red brass—uniform in thickness, with clean core work. The seat is reinforced by a bead, to prevent distortion and to insure a perfect cut-off.

Double guide for bottom wire always seats the float properly. Accurate tapping and machining insure perfect action of the *MUELLER* Douglas Flush Valve, No. A1-1275. The float is of highest quality rubber.

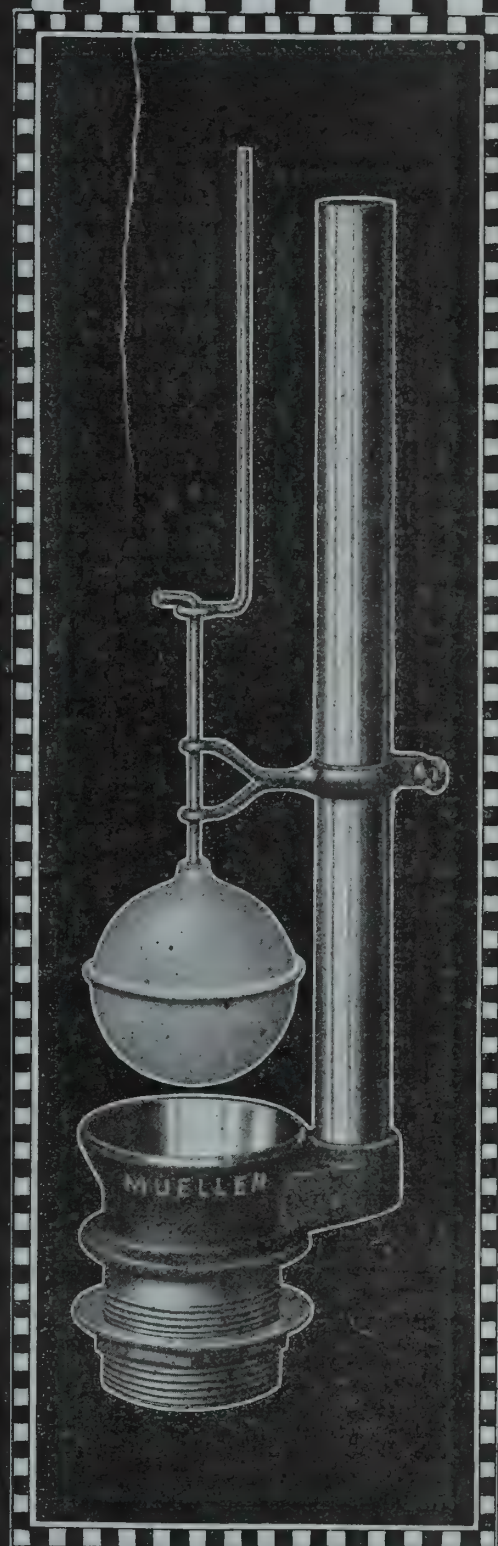
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Cast and Aluminum; also Screw Machined Products



Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

AS heralded by the shaping of recent events on the primary markets, sharp declines have occurred on many steel and metal prices. Many of these reductions vitally affect various products pertinent to the plumbing and steamfitting trades. Revised quotations on black and galvanized sheets follow similar lower levels in steel mill circles. Another important reduction is noted on bar iron, with a noticeable increase in the number of steel inquiries. Prices on solder and sheet zinc are also lowered, due to the tendency on the primary markets. Scrap metal prices also dropped considerably, with a dull tone prevailing. There is a weaker tendency on copper and brass; a movement that is reflected all through the ingot metal markets, with decreases on copper and spelter. Soil pipe sales are reported as only fair, and there has been no marked

development in either boiler tubes or pipe fittings, sales in these products being light. Some further revisions are announced in the discounts on radiator and gate valves. Building activity may revive sales in radiators, but the current movement is below expectations. Nominal quotations on range boilers remain at the recent lower level, and any looked for adjustment has failed to materialize, the situation still being somewhat unsettled. Closet outfit sales, and also the movement in enamelled ware, are just ordinary, and due to a certain degree of disappointment in spring building enterprise, the activity recorded up to the present is below the volume anticipated. Stove orders received for fall delivery have only been fair, but there is a brisk movement in conductor pipe and eavestrough, and a seasonable demand is noted for corrugated sheets.

MONTREAL

MONTREAL, June 29.—The downward trend is again noticed on certain lines for plumbers' supplies. Galvanized and black sheet show a slight reduction from previous levels, owing to a small decrease in prices from the U. S. mills. Prices on cotton wastes and wipers are reduced in most qualities, and zinc sheets are now quoted lower owing to an easier tone of the basic metal on the primary market.

Enamelled ware shows little, if any, improvement in the last two weeks, the unsettled feeling still existing with quotations varying among the jobbing houses. Wrought pipe, pipe fittings, radiators, range boilers, iron and steel bars, soil pipe and eave trough are quoted without change. Business generally is quiet, although some lines are selling well for the season of the year.

Closet Prices Unsteady

Montreal.

Following are the net prices on closets, but some wholesalers are quoting a little less than these. Little improvement has been shown in the past two weeks, but dealers are hopeful of increased business in the following summer months:

Closet, standard outfit.....	32 00
Do., with post hinge seat.....	33 00
Do., white vitro, vitreous china or enamelled iron, with wash down bowls and oak or mahogany post hinge seat....	35 00
Do. add for reversible trap bowl	1 25
Do., add for siphon jet bowl...	7 00
Do., for $\frac{3}{4}$ in. valve on supply pipe	1 50
Do., deduct for supply pipe...	0 80
Do., deduct for floor flange...	0 60
Do. wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richilieu" bowl	10 50
Do., extra for spud.....	0 60
Do., oak, or oak-vitro tank, with	

fittings, less seat.....	17 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge.....	0 25
Do., white vitro, vitreous china or enamelled iron tank, with fittings, flush elbow and supplies, less seat.....	19 00

Enamelled Ware Sales Light

Montreal.

There is practically no change to report on enamelled ware, sales are still light with little new business in sight at present. Wholesalers and jobbers are anticipating an improvement both in sales and prices in the near future, the market still being unsettled and quotations slightly lower in some quarters than in others.

Corrugated Movement Light

Montreal.

No change has been made in prices on corrugated sheets. While the present movement is slow and mostly of the lightest gauge, dealers report this is not unusual at the present season of the year and do not look for much improvement until the late summer.

Wrought Pipe Quotations Hold Montreal.

Wrought iron and steel pipe are maintained at list No. 51, the selling basis for piping since April. A sorting movement continues with little improvement, if any, showing. Stocks are now good in all sizes in the different warehouses.

Soil Pipe Discounts Unsteady

Montreal.

While the discounts on soil pipe are unchanged, there is a somewhat unsettled feeling existing, and slightly lower quotations are obtainable from a few sources. However, most jobbing houses are maintaining their prices at the following discount:

SOIL PIPE (medium and extra heavy)
2, 3 15 p.c.; 5 and 6-inch, 20 per cent. discount.

4-inch, 25 p.c. discount.
8 inch, add 5 p.c. to list.

FITTINGS—

2 to 6 inch fittings, 40 per cent. discount.
8-inch, net.

Eavestrough Sales Fair

Montreal.

With no changes in quotations on eavestrough, conductor pipe, etc., sales are continuing fair. Many outside dealers did not lay in a large stock in the winter and early spring months, but waited until the actual demand, and this undoubtedly will stimulate sales well up until the fall. Stocks are still ample to meet requirements with present conditions prevailing.

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We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

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Winnipeg—HARRY F. MOULDEN, Confederation Life Building
Vancouver, B.C.—CYRIL AMES, Wilton Block

Montreal and Toronto—From Head Office, Guelph, Ont.

Radiator Sales Quiet

Montreal.

Quotations on radiators and boilers are unchanged since the change in discount on radiation last month. Little new business is in evidence and dealers report a quiet demand at present, but are anticipating an increased activity during the summer and early fall months.

Cotton Waste Prices Reduced

Montreal.

With the exception of "6X special" White, and "Keen" colored waste, these being the lower qualities—prices on cotton wastes are reduced from 1-2 to 2 cents per pound. Cotton wipers, both white and colored are again lower in price, this being the second reduction on these in recent weeks. Dealers report a slight increase in demand for the past two weeks. Following are the new quotations:

Cream, polishing	0 20
White	
XXX	0 17
XX	0 16
X	0 15
XLCR	0 15
X Empire	0 14
X Press	0 13
6X Special	0 12
Colored	
Fancy	0 14
Lion	0 12½
Popular	0 10
Keen	0 09
Wool Packing	
Arrow	0 30
Axle	0 25
Anvil	0 20
Dominion Wipers	
Wash and Sterilized.	
White Cotton	0 22
Colored Cotton	0 16

Above lines subject to trade discount for quantity.

Compression Prices Hold

Montreal.

The readjustment in quotations of the Emco line of valves two weeks ago, is the last change in compression goods. The tone of the market generally is a little easier, notwithstanding many lines of valves and bibbs have shown decreases in price during recent weeks. A general sorting demand is reported and fairly satisfactory for the season of the year. Quotations show an inclination to vary in some quarters, but the prices recently listed are being generally maintained.

Light Steel Market

Montreal.

No change is made on bar iron and steel, and little variation is expected while the present slackness in demand is prevailing. Prices from the U. S. mills have shown a slight reduction, but this has had no reflection locally as yet, and is not thought sufficient to result in any startling price lowering on the local markets.

Zinc Sheet Prices Lowered

Montreal.

Zinc sheets offer the change in quotations on lead products, these now being quoted at 11½ cents in casks and 12 cents in broken quantities. These reductions are said to be in sympathy with the recent weakness of

the basic metal on the primary markets. Other lead products while holding, now have a little weaker tendency than in previous weeks due to the same cause. Local prices are the following:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10 p. c.	
Lead traps and bends	10 p. c. off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 10¾
Do., 4 to 8 lbs. sq. ft.	0 10
Cut sheets 1-4c lb. extra and cut sheets to size 3-4c lb. extra.	
Solder, guaranteed, lb.	0 29
Do., strictly, lb.	0 27
Do., commercial, lb.	0 24
Do., wiping, lb.	0 24¾
Do., wire, lb.	0 37½
Zinc, sheets, casks.	11½
Do., broken lots	0 12

Pipe Fittings Unchanged

Montreal.

Quotations on the different pipe fittings are unchanged, with the sales reported a little more brisk than in the past few weeks. Dealers are buying only in a sorting way, however, as orders are for small quantities.

Decrease In Sheet Prices

Montreal.

A small decline in quotations on black and galvanized sheets has been made in sympathy with slightly lower levels being reached at the U. S. mills. While another series of price-cutting is hardly the state of affairs throughout the different fields, the smaller independents reduced their prices to a slightly lower basis to obtain business and it is now reported the larger interests have fallen in line. This is not expected to continue as manufacturers generally reflect the opinion that reduced prices do not stimulate business, and a revival in trade is looked for as a precedent to any great improvement being made. The demand locally is still backward, sales being of a small order for repair or replacement work. Following are present quotations still showing a range:

Black Sheets—

10 gauge	5 00 to 6 00
12 gauge	5 05 6 05
14 gauge	5 35 6 35
16 gauge	5 45 6 45
18-20 gauge	5 80 6 80
22-24 gauge	5 85 6 85
26 gauge	6 00 7 00
28 gauge	6 10 7 10
Sheets 36 in. wide, 20c per 100 lbs. extra.	

Galvanized Sheets—

U. S. Standard—	
10½ oz.	8 00 to 9 00
28 gauge	7 50 8 50
26 gauge	7 25 8 25
22-24 gauge	7 00 8 00
20 gauge	6 75 7 75
18 gauge	6 75 7 75
16 gauge	6 75 7 75
Queen's Fleur-de-lis	
28 gauge	10 00 9 25
26 gauge	9 75 9 00
24 gauge	9 15 8 60
22 gauge	8 80 8 15
18-20 gauge	8 10 8 00

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken bundles. These quotations are nominal.

Boiler Tube Movement Slow

Montreal.

No change can be reported in prices or sales of boiler tubes. Quotations remain at former figures, with the movement at present slow, confined to replacement work. Little change is expected during the summer months.

Range Boilers Still at Lowered List

Montreal.

While it was expected that prices quoted a few weeks ago on range boilers would be increased to higher levels in the near future, no change has been made up to the present. Resulting from a series of price-cutting the new prices were issued in the hope of stabilizing the market. Manufacturers claimed that they could not sell at present prices and retain a profit, and in all probability quotations would be raised the following week. Boilers, however, can still be bought at the following prices:

Range Boilers—	Standard	Ex. heavy
30 gallon	8 75	11 25
35 gallon	11 25	.....
40 gallon	13 50	16 00
52 gallon	20 00	.....
66 gallon	28 00	.....
82 gallon	35 00	.....
100 gallon	45 00	.....
120 gallon	54 00	.....

Quiet Markets In Ingots

Montreal.

Ingot metal markets are still much depressed with business more or less at a standstill. Present indications do not offer many signs of an improvement in the near future. Tin and copper continue to ease on English and American markets, while spelter and lead have steadied a little.

TIN.—Tin continues to decline in London where stocks are gradually increasing, and the sentiment generally is bearish. The demand locally is light as there is still difficulty in procuring supplies in England. Local price 36½ cents.

COPPER.—This has been declining steadily in London and New York, largely owing to the falling off of export demand. Locally the market is easier in sympathy at 17¼ cts. for electro, and 17½ cts. for casting.

SPELTER.—The market on spelter holds steady both in London and East St. Louis and it is hoped the bottom has been reached. The demand however continues light with quotations at 7¾ cents.

LEAD.—This metal does not show much change although the American market is slightly lower. It is doubtful, however, if prices, will go much lower as consumption continues fairly good and no appreciable change is looked for. Quotations 6½ cents.

ANTIMONY.—There is little improvement to report in this metal as consumption is still on the light side with stocks ample for all needs. Chinese is quoted at 7½ cts., high grade English 8½ cents.

ALUMINUM.—Aluminum is still dull and quotations are a little easier at 32 cents.

TORONTO

TORONTO, June 29.—Many important price reductions, which vitally affect quotations on plumbing and steam-fitting goods, feature the current market reports. Sharp declines on the primary markets have resulted in lower price levels on solder and sheet zinc, and a weaker tendency on copper and brass. Other marked revisions include reductions on black and galvanized sheets, and a lower price on bar iron. A noticeable drop is recorded in scrap metal quotations, with a weaker tone in the ingot metal markets. Some reductions on radiator and gate valves complete the list of new price changes.

A gradual improvement is noted in building activities, and this is expected to develop a corresponding improvement in the movement of such products as compression goods, radiators, enamelled ware, piping, and so on. Business is reported as gradually showing a more satisfactory trend, especially in seasonable trading. Collections continue fairly good.

Solder Prices Lowered

Toronto.

Recent fluctuations on the primary markets have resulted in an easier tone on lead products. The advance recorded a few weeks ago on solder prices has now been lowered through reductions noted this week. Wire solder shows the largest decline with 2½ cents per lb., and the price revisions on other grades vary from 1 to 2 cents. Following are the new quotations:

Lead pipe, list, per lb...	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 inch list	0 14½
Lead pipe is subject to discount of 10 per cent.	
Lead traps and bends.....	10 p.c.
Lead sheets, 4 to 6 lbs. sq. ft. in rolls, lb....	0 09½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 33
Do., 40-60	0 27½
Do., 50-50	0 30
Do., strictly, lb.	0 25
Do., commercial, lb....	0 22
Do., guaranteed, lb. . .	0 27
Do., wiping, lb.	0 21½
Zinc sheets, per lb.	0 13
Calking lead	0 08 0 09

Soil Pipe Sales Only Fair

Toronto.

Prices on soil pipe and fittings remain nominally unchanged. The movement in these products has recently registered some slight improvement, but sales are still reported slow, and not up to expectation for this season of the year. Current prices follow:

Soil Pipe—

2 and 3 inch, 10 p.c.
4 inch, 20 p.c.
5 and 6 inch, 15 p.c.
8 inch, add 5 p.c.

Fittings—

2 to 6 inch fittings, 40 p.c.
8 inch fittings, plus 5 p.c.

Sharp Declines In Scrap Metal Prices

Toronto.

There have been sharp declines not generally continues very dull, and prevailing conditions are reported as disappointing. Heavy melting steel shows ed in the metal price list. The market

a considerable decrease, and cast iron grades have been equally stagnant with price cuts noted on stove plate and on No. 1 cast. Lead scrap is easier with a lower range recorded, and other reductions are also noted on yellow brass and scrap pipe. The following revised prices are the average nominal quotations for fairly large quantities:

Waste Material

Nc. 2 busheling	\$11 00
Stove plate, per ton ...	12 00 13 00
Yellow brass	6 00 7 00
Red Brass	9 00
No. 1 machinery cast ..	17 00 18 00
Heavy melting steel ...	11 00 12 00
Heavy Copper	10 00 11 00
Scrap Zinc	3 50 4 00
Light brass	4 00 4 50
R. Rd. wrought iron, No 1, gr. ton	11 00 12 00
Scrap Pipe	6 00 7 00
Heavy lead	4 25 4 50
Old rubber boots & shoes	2 50 3 00
Overseas lumbermen's rub. boots	1 50 2 00
Auto tires	0 50 1 00
Tea lead	2 25 2 50
Solid Tires	0 75 1 25

Pipe Outlook Improves

Toronto.

Some increase in the number of inquiries, combined with firmer tone reported in foreign markets, has resulted in improving the current outlook for pipe. Local sales continue of a restricted nature, but the increased construction of building is looked for to create a more satisfactory tone in this market. Prices at present are being maintained at List No. 51.

Decline In Prices On Sheets And Plates

Toronto.

Following the general downward tendency of prices on sheets and plates in steel mill circles, local quotations on these products are also on a lower level this week. The large majority of the orders being handled, remain principally of the small variety, and the current market is limited. A considerable range is recorded in prices on certain gauges, but the following prices are generally quoted for fairly large purchases.

PLATES—

10 gauge	from \$5 00 - \$5 50
12 gauge	" 5 05 - 5 55
14 gauge	" 5 10 - 5 60
16 gauge	" 5 20 - 5 70

BLACK SHEETS—

14 gauge	" 5 10 - 5 60
16 gauge	" 5 20 - 5 70
18-20 gauge	" 5 30 - 5 80
22-24 gauge	" 5 35 - 5 85
26 gauge	" 5 40 - 5 90
28 gauge	" 5 50 - 6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots. An extra 10c pr 100 lbs. is also charged on sheets 36 ins. wide.

GALVANIZED SHEETS—

Premier and Apollo

10¼ oz.	" 7 90 - 8 40
U. S. 28	" 7 50 - 8 00
U. S. 26	" 7 20 - 7 70
22 and 24	" 7 05 - 7 55
18 and 24	" 6 90 - 7 40
16	" 6 75 - 7 30
12 and 14	" 6 60 - 7 20

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10¼ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charge of from 25c per 100 lbs. is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

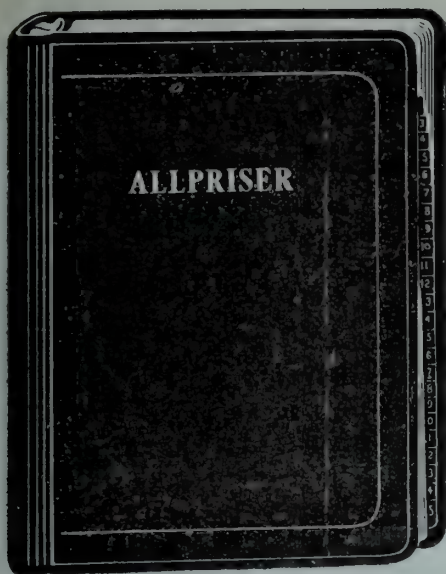
Prices shown are full cases. An extra charge of 25c per 100 lbs is made for less than case lots.

Reduction In Bar Iron and More Steel Inquiries

Toronto.

The reduction of bar iron from \$4.25 to \$4.10, and some further seasonable inquiries, are the features of the steel market this week. The best period in inquiries is reported for some time past, but what proportion of business will result is difficult to estimate. The view is expressed in some quarters that these are merely intended to test out the current market tone, and the prevailing buying prices. Based on this general surface improvement, however, prospects are considered as a little brighter than they were a month or two ago, for it is stated as encouraging to receive inquiries in this volume after the recent months of steel depression.

On the other hand, the week's business is described as another brief spurt, with a reaction expected as soon as current demands have been filled. Mill conditions are still very much varied. The average steel and iron quotations are noticeably a shade lower, but it is practically conceded that better prices could be secured on large orders, if there was a generous volume of business apparent. Every order can be said to be receiving treatment on its individual merits, with the basic quotations for small purchases which still predominate. No marked development in steel business is anticipated for several weeks. Current prices are as follows:



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Allpriser Service consists of a flexible, leather bound book 7 by 9", of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest change.

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Morrison Valves

Your customers know the excellent reputation of Morrison Products and buy them readily.

Morrison Valves are specified on nearly all drawings for important contracts.

In every feature of design Morrison Valves are abreast of modern engineering progress.

These reliable fittings are made from perfect patterns, cast with the greatest skill, insuring evenly distributed material in the walls.

James Morrison Brass Mfg. Company
LIMITED

93-97 Adelaide Street West TORONTO, ONT.



Steel and Iron—

Mild steel, 3-16 in.	4 10
Do., ¼ in. and heavier	3 75
Bar iron, 3-16 in.	4 10
Do., ¼ in. and heavier	3 75
Angle base	4 00
Horseshoe iron	4 10
Tire Steel	4 70
Band Steel ¾" to 4".....	4 50
Spring steel	10 75
Crucible cast sheet steel	30 00
Mining drill steel	23 00
Cast tool steel	20 00
Sleigh shoe steel	4 10
Norway iron	15 00
Toe caulk iron	5 40
Hoop steel	5 00

Stove Orders Only Fair**Toronto.**

Manufacturers report that ranges, cook stoves, and heaters of all kinds are moving fairly well. It is stated that the current demand cannot compare with the volume of sales recorded last year, but up to the present just correspond very well with the 1919 orders. Now that many new stove catalogs and descriptive booklets have been distributed to the trade, improved activity in this line is looked for during the next few weeks.

Valve Discount Revisions**Toronto.**

Some further revisions are noted this week in the prevailing discounts on radiator and gate valves. The price reductions resulting from these changes, conform to the recent lower quotations recorded on other lines of compression work. Sales in these products are reported as just fair, and not up to expectations. The apparent decline in large construction operations which were contemplated and looked forward to this spring is attributed by some dealers as lessening a seasonable brisk movement. The erection of small buildings, however, offers the opportunity for numerous small orders. Following are prevailing prices:

Compression work, standard..	37 p.c.
Fuller work, standard.....	30 p.c.
Bath cocks, compression.....	29 p.c.
Do., Fuller	25 p.c.
Flatway stop and waste cocks, standard	40 p.c.
Roundaway stop and waste cocks, standard	34 p.c.
Brass steam cocks, standard..	10 p.c.
Globe, angle and check valves, standard	5 p.c.
J. M. T.	20 p.c.
J.M.T. C.	25 p.c.
J.M.T. Gate Valves	15 p.c.
Gate or Straightway	16-10 p.c.
Jenkins Globe	10-10 p.c.
Radiator valves, standard	30 p.c.
Do., removable discs	42 p.c.
Emco J. D. Valves	20 p.c.
Emco Check Valves	20 p.c.
Webber Gate Valves	20 p.c.
Basin Cocks—	
No. 1 and 1 Puller pattern..	30 p.c.
Quick opening, No. 3633	37 p.c.

Building Activity May Revive Sales In Radiators**Toronto.**

An improvement in the volume of sales recorded on radiators is generally reported, now that seasonable building activity is becoming more noticeable. The total erections during May, easily eclipsed the somewhat dis-

appointing April, and current indications point to a further improvement in the volume of June Building. Progress in building generally, however, is not up to expectations outlined in the early spring; but a fair amount of business is now reported, with merchants stating that the current outlook shows gradual improvement, and a more optimistic tone is developing as regards prospects for business in radiators during the ensuing summer months. Prices remain unchanged, with the recent revisions in discounts still holding.

Range Boiler Quotations Still Unsteady**Toronto.**

No new understanding has yet been announced with regard to prices on range boilers, and the recent reductions are still holding. The local price for the 30-gallon standard boiler is now quoted at \$8.75, and the quotations on the 35-gallon size are \$9.50 and \$13.80. The claim is still in evidence that present price levels are below actual value, and some future readjustment is looked for in certain quarters. Orders, however, are being taken at the following nominal prices:

Range Boilers—	Standard	Ex-heavy
30 gallon.....	\$ 8 75	\$11 50
35 gallon.....	9 50	13 80
40 gallon.....	13 80	16 50
52 gallon.....	20 40	25 20
66 gallon.....	28 80	34 80
82 gallon.....	36 00	47 40
100 gallon.....	45 60	56 40
120 gallon.....	55 20	64 80
144 gallon.....	78 00	93 00

Closet Outfit Sales Are Below Expectations**Toronto.**

For the past few weeks prospective buyers of closet fixtures appear to have adopted a hold off attitude. Conditions in this market are identical with the prevailing tone in the enamelled ware situation. A very slight improvement has been recorded in recent orders, but the total volume of sales still leaves much to be desired. Reports indicate that the trade generally looks for some little improvement in business as the summer advances. Prices on all lines remain unchanged, the recent revisions on the standard outfit still being maintained.

No Marked Development In Enamelled Ware**Toronto**

Business in enamelled ware is reported as just ordinary. A slight gradual improvement has been noticed in these products, and sales generally are expected to develop a firmer tone as the summer progresses. The total volume of business, however, is still short of expectations, with little prospects of any marked stimulation. The recent quotations, with discounts unchanged, are being well maintained.

Boiler Tube Sales Light**Toronto.**

The revisions on prices of boiler tubes which were looked for in some quarters, have failed to materialize up to the present. Current quotations are holding, but any developments are reported as being dependent upon future reduction in mill costs. Conditions and prices remain unchanged at present on local markets.

Eavestrough and Conductor Pipe Move Well**Toronto.**

Manufacturers and distributors of conductor pipe, eavestrough and conductor elbows report a brisk movement in these products. Building activity on houses and numerous small structures, combined with seasonable weather conditions, have presented more opportunities for current sales. The prevailing quotations remain at the revised discounts recently announced.

Weaker Tendency on Copper and Brass**Toronto**

Large quantities of scrap copper and brass are reported to have flooded the current markets, and with very little outlet at present for this surplus, a corresponding depression in these metals is being experienced. Copper and brass tubing, sheets and rods, reflect this weaker tendency, and the recent lowered prices on these products are still being quoted.

Activity Reported In Corrugated Sheets**Toronto**

Activity is evident in corrugated sheets, and a fair seasonable movement is reported. Sales are of the small variety, but are more numerous. No change has been recorded in prices on corrugated, but dealers state that conditions have improved during recent weeks, and a more satisfactory tone now prevails.

Fair Sales in Pipe Fittings**Toronto**

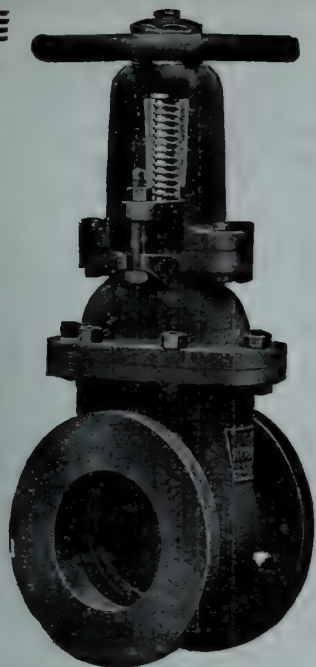
The recently recorded increase in the volume of sales in pipe fittings, has now registered a slight falling off according to reports received this week. It is stated that the movement is still fair, however, with current prices remaining unchanged.

Weaker Tone Evident In Ingot Metals**Toronto**

Announcement that the looked for settlement in the British coal strike failed to materialize, naturally makes the current outlook unfavorable for metal demand on the outside markets. Prospects for increased domestic consumption are anything but promising at this time, it being reported that the foreign situation is having some influence on current markets here. A weaker tone is evident in ingot metals, and now that the outlook is apparently headed towards a further decline, consumers are more inclined to refrain from the market at the present time. Prices changes are few, the only tendency recorded being towards slightly lower levels.

COPPER—Local quotations on copper have now dropped to 17½ cents. This is a decrease of one-half cent on the price that has recently prevailed, and follows the easier tone reported during the last few weeks. The decrease in foreign buying, the slump in the exchange rate, and the noticeable lack of inquiries, have all combined to weaken the copper market.

TIN—A weaker tone is evident in the current tin market, this metal reflecting the unsatisfactory develop-



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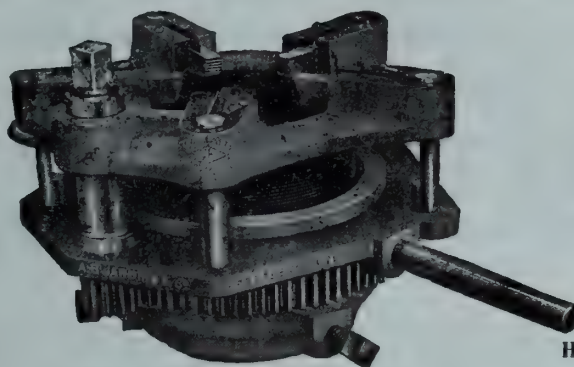
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Weight 120 lbs.

These smooth-working tools give the maximum of satisfaction in use. The dies open out as the tool advances on the thread so as to make the proper taper. This prevents friction on the pipe and leaves every ounce of power available for making the cut. The dies only cut with the mouth of the cutter.

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Pipe Threading tools are beautifully designed with no complicated parts to get out of order. Toledo Tools do their work easily, rapidly and accurately. The A. B. Jardine Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

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Sanitary Engineer

ment in the British coal strike. Prices have registered a gradual tendency to lower levels, and the current local quotation is now 37 cents.

LEAD—Lead is still very dull locally, and a waiting policy prevails in this market generally. Prices are being fairly well maintained, with the lower range of \$6.50 noted last week prevailing in some quarters, and the slightly higher level of \$6.75 also being quoted. Whether prices will shortly be equalized is uncertain at the present time, for it is noted that the foreign markets also show an easier tone.

SPELTER—With a large increase in surplus stocks of spelter noted, prices are now being shaded a little in order, if possible, to keep stocks down. A further reduction in local prices has been announced, the prevailing quotation now being \$7.00. This is a decline of 25 cents on the previous price level.

ANTIMONY—The general dullness in all ingot metals is evident in this market also. Sales are reported as few and far between, but prices are unchanged from previous levels. The present local quotation is still from 8 to ten cents.

ALUMINUM—The aluminum market is practically stagnant at present, with prices remaining nominally unchanged. A marked improvement in those trades, such as the automobile industry, where aluminum is used in fairly large quantities, is reported as the only development likely to bring about a revival of interest in this metal. The price of 30 cents is still in effect locally.

Waste Revisions Steady

Toronto

The reductions recently announced on both white and colored cotton wastes are being generally maintained. No further price revisions have been reported, and dealers state that few changes, if any, are now expected. Market conditions are reported fair, with some signs of an optimistic tone developing.

Problems of Sewage Disposal in the West

(Continued from Page 24)

Reinforcing. The roof slab covering the septic tank, syphon chamber and sewage pump well should be reinforced with iron rods, heavy fence wire, strap iron or any similar material which may be available.

It is advisable to reinforce also all concrete walls and floors to prevent cracking. Manhole frames and covers should be of cast iron. Covers over Septic tank and syphon chamber must be air-tight. If made on the ground from concrete, covers should be provided with lifting rings and should be sufficiently light to be easily removed.

Sewage Pump Well—In villages and towns where contents of the pump well are removed to the nuisance ground, the pump should be set on a platform so that the liquid may be pumped direct into a wagon.

Montreal Plumbers Adopt Schedule

(Continued from Page 17)

Time allowed for setting and connecting of each radiator with an average connection of 1":—

1½ hours—man and helper.

Time allowed for setting and connecting one automatic expansion tank complete:—

9 hours—man and helper.

The above time allowed includes all necessary hangers on the basement ceiling, and all necessary straps and supports on risers. No cutting or repairing of passages of pipes included.

SINGLE PIPE GRAVITY STEAM JOB

Time allowed for erecting steam main on ceiling with a fitting at an average of every ten feet:—

2"	Number of feet per 9 hours	65
2½"	" " " " " "	55
3"	" " " " " "	45
3½"	" " " " " "	40
4"	" " " " " "	35
4½"	" " " " " "	32
5"	" " " " " "	30
6"	" " " " " "	25

Time for erecting drip line back with a fitting at an average of every ten feet:—

1½"	Number of feet per 9 hours	90
2"	" " " " " "	80
2½"	" " " " " "	70
3"	" " " " " "	65

Time for erecting single riser with a fitting at an average of every ten feet:—

1"	Number of feet per 9 hours	100
1¼"	" " " " " "	90
1½"	" " " " " "	80
2"	" " " " " "	75
2½"	" " " " " "	60
3"	" " " " " "	55
3½"	" " " " " "	50
4"	" " " " " "	45

Number of branches that should be run from these risers to the various radiators at an average distance from the riser of 8 feet, with branch brought through the floor, the proper height to receive an elbow and valve for the radiator:—

1"	Number of branches per 9 hrs.	12
1¼"	" " " " " "	10
1½"	" " " " " "	8
2"	" " " " " "	6

Time allowed for setting and connecting of each radiator:—

1"	Number of radiators per 9 hrs.	20
1¼"	" " " " " "	18
1½"	" " " " " "	16
2"	" " " " " "	12

This time is all based on providing thimbles and sleeves in concrete work and the cutting being done by others in wood work.

TWO PIPE VACUUM SYSTEM STEAM JOBS:

Time allowed for erecting pipe from the top of the boiler along the ceiling of basement, allowing a fitting at an average of every ten feet:—

2"	Number of feet per 9 hours	65
2½"	" " " " " "	55
3"	" " " " " "	45
3½"	" " " " " "	40
4"	" " " " " "	35
4½"	" " " " " "	32
5"	" " " " " "	30
6"	" " " " " "	25
7"	" " " " " "	20
8"	" " " " " "	18

Time for erecting the corresponding return line with a fitting at an average of ten feet:—

1¼"	Number of feet per 9 hours	95
1½"	" " " " " "	90
2"	" " " " " "	80
2½"	" " " " " "	70
3"	" " " " " "	65
3½"	" " " " " "	55
4"	" " " " " "	45

Time for erecting risers with a fitting at an average of every ten feet:—

1"	Number of feet per 9 hours	100
1¼"	" " " " " "	90
1½"	" " " " " "	80
2"	" " " " " "	75
2½"	" " " " " "	60
3"	" " " " " "	55
3½"	" " " " " "	50
4"	" " " " " "	45

Time for erecting return risers with a fitting at an average of every ten feet:—

1"	Number of feet per 9 hours	100
1¼"	" " " " " "	90
1½"	" " " " " "	80
2"	" " " " " "	75
2½"	" " " " " "	60

Time required for erecting branches from these risers to the radiators with connections brought through floor and left at the proper height to receive elbows and valves for the radiators with an average distance of five feet from the risers:—

1¼ hours—man and helper.

Time allowed for the setting, and connecting of each radiator:—

1¼ hours—man and helper.

Time allowed for connecting in the boiler room of the standard outfit comprising:—

- 1 Boiler Feed Pump and receiver.
- 1 Vacuum Pump with all necessary steam and exhaust connections, suction and discharge connections, at an average distance from the boiler of 20 feet.

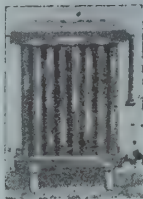
The average pipe connections will be as follows:—Steam 1", Exhaust 1¼", Cold Water Connections to Receiver ¾", Discharge from Pump to Boiler 1½", Suction on Vacuum Pump, 4".
60 hours—man and helper.

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Victory Radiators

An improvement in engineering and design.

The Victory Radiator is made with two flat, hollow castings, one for the top and the other for the bottom, with tubes inserted in them. One tube is within the other. In this way, water is caused to circulate through the headers and be-



tween the two tubes. This is a series of double tubes; 8 in the smallest castings, up to 54 in the larger ones. This adds the outside surface radiation of the larger tube, and the inside surface radiation of the smaller tube, to that of the top and bottom headers. So Victory Radiators

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Further investigation proves them still more efficient. Steel tubing is thinner and gives better radiation. The air circulation is better. The radiators occupy a minimum of space. They are artistic in appearance.

Since there is only $\frac{1}{8}$ as much water in Victory Radiators, it is quickly heated, and stimulates circulation of the water, making radiators hotter and radiating more heat. A smaller furnace can be used to heat the lesser quantity of water. Write for the remainder of the advantages.

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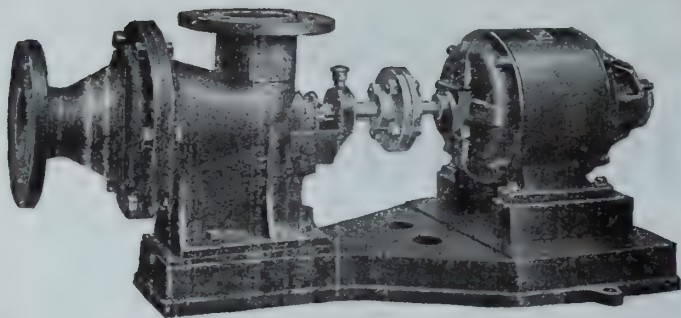


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Positive Circulators for Hot Water Heating

These pumps are especially designed for use on hot water heating systems and are built in four sizes to take care of radiation up to 15,000 feet.

They save money in installation owing to the reduced radiation and pipe sizes required. They save money in maintenance of the system because every part of the system is kept at approximately the same temperature as the water in the boiler.

They allow greater flexibility in the placing of pipes and radiators to clear openings. Radiators may be placed above or below the return, at any distance from the boiler and the circulator will ensure circulation through them.

If you are contemplating the installation of a heating system let us show you how to get increased efficiency at a reduced cost.

The Atlas Engineering & Machine Co.

23 River St., Toronto



Clears Clogged Pipes

This Time-and-Money-Saver for the plumber clears clogged or frozen pipes promptly, and does a better job in less time.

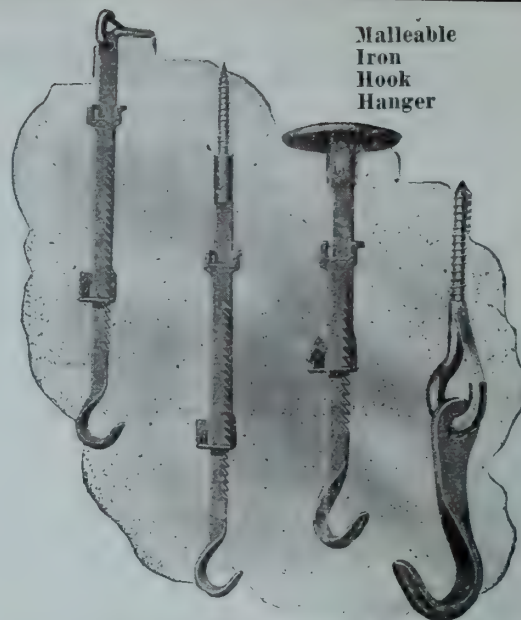
This means money saved, and increased profit, on every job where frozen or clogged pipes must be cleared.

It will pay you to keep it on hand, not only to shorten your own work on such jobs, but for profitable sales to your customers.

CHAMBERLAIN DESOLVO CO., LTD.

109 Church St. Toronto

Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St. Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St. London, Ont. Western Canada Representative: N. D. McPhail & Co., Standard Bank Bldg., Vancouver B.C.



Malleable
Iron
Hook
Hanger

The great advantage of the No. 5 hangers is that they can be put in line and readily adjusted to any pitch wanted. Furnished with extension pieces up to ten feet this hanger is instantly adjusted up and down by simply throwing back the cam.

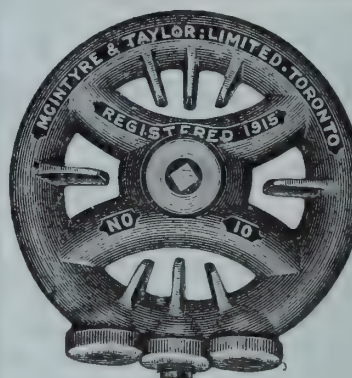
Send for a Beaton & Caldwell Catalogue. You will find that we manufacture a variety of Steam Specialties of interest to Canadian Plumbers and Steamfitters.

The Beaton & Caldwell Mfg. Co.

New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co
New Birks Bldg.
Montreal

Western Agents
A. E. Hinds & Co
Chamber of Commerce
Winnipeg



M & T. Coils

EXTENDED SURFACE

SOLD BY THE FIRMS
MENTIONED BELOW:

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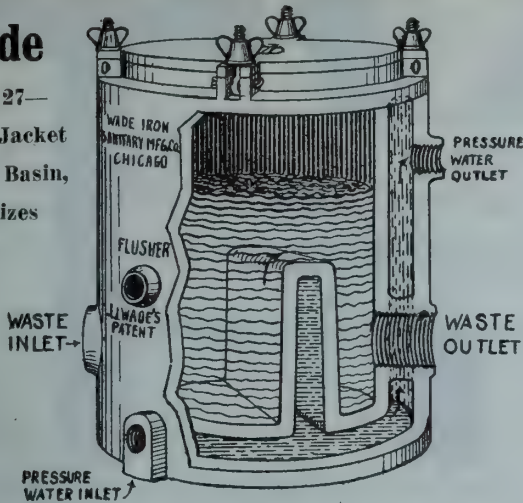
Wade

B. Fig. 27—

Water Jacket

Grease Basin,

Four Sizes

**Water Jacket Grease Basin**

Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B"

WADE IRON SANITARY MFG. CO.

551 W. Fulton Street, Chicago, Illinois

Every Home Should Be Piped For Gas

The Gas piped home is easier to sell for buyers instantly recognize the advantages of Gas Service. They are willing to pay a higher price for a home so equipped.

PIPE FOR GAS NOW

Each room should have an outlet for
Gas Lighting

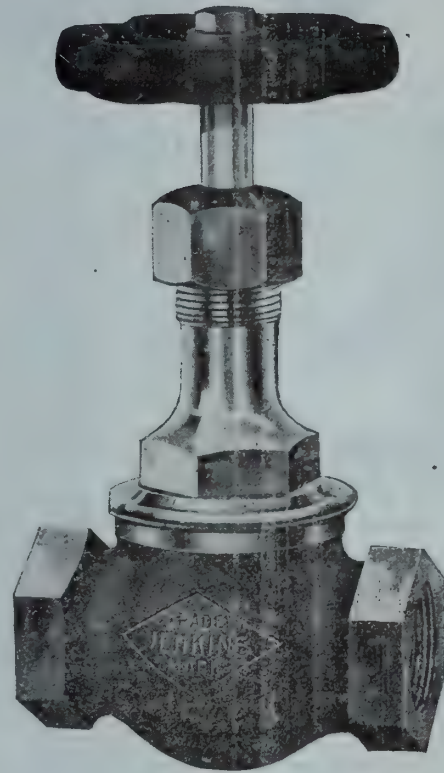
Remember to leave an outlet in the bathroom for Portable or Permanent Heaters.

Each fire-place should be piped for

Radiant Gas Fires

And make it an all-gas kitchen—The Gas Range—Gas Water Heater, etc.

**The Consumers' Gas Co.
of Toronto**

**Jenkins Valves
are big factors
in good plumbing****FIG. 106**

Suitable for 250 lbs. Working Water Pressure or 175 lbs. Working Steam Pressure

Jenkins Valves are made of brass, iron or cast steel in types and sizes to meet all requirements of plumbing and heating service.

Now, as for some 57 years, "JENKINS" are specified as the valve equipment for good plumbing. They are dependable and trouble-free under every condition, because each valve in every type is made for maximum service and so tested before it leaves the factory.

Supply houses everywhere carry a complete Jenkins stock.

Plumbing and Heating contractors should write for Catalog No. 8 and descriptive literature on Jenkins Diamond-marked Valves for every plumbing and heating requirement.

Jenkins Bros. Limited
Head Office and Works: 103 St. Remi St. Montreal, Can.
TORONTO LONDON VANCOUVER
6 GREAT QUEEN ST. 100 MARK LANE 100 MARK LANE
BRANCHED IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD

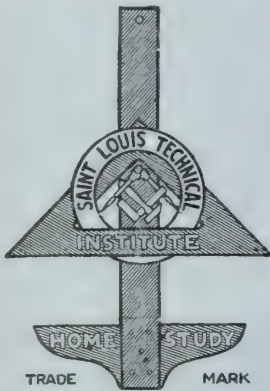
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WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.

Courses in SHEET METAL PATTERN DRAFTING.

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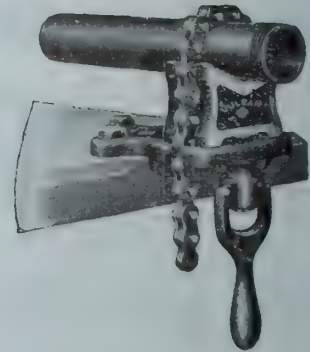
St. Louis, Mo.

Better Tools Make Better Workmen :



You can't buy better pipe tools than Williams' "Vulcan" Drop-Forged Chain Pipe Wrenches and Vises
WRENCHES—8 sizes for $\frac{1}{4}$ to 18 inch pipe.
VICES—3 sizes for $\frac{1}{4}$ to 8 inch pipe.

J. H. WILLIAMS & CO., Limited, "The Drop-Forging People"
 77 Thorold Road St. Catharines, Ont.
 Formerly Canadian Division of The Whitman & Barnes Mfg. Co.



**Superior
Plain**



**Closet
Bend**

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes $\frac{1}{4}$ -in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask Your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
 Works at Lachine Canal, Montreal

INDEX TO ADVERTISERS

Allison. K. B.	31
American Plumber Supplies.	40
Amherst Foundry Co. Inside Back Cover	
Atlas Engineering & Machine Co., Ltd.	36
Atlas Tank Works.	40
Bastian Morley, Ltd.	39
Beaton & Cadwell.	36
Campbell & Co., P.	40
Canada Metal Co.	9
Canadian Brass Co.	2
Canadian Tube & Steel Products	38
Chamberlain Desolvo Co.	36
Clare Bros. & Co. Ltd.	29
Consumers' Gas Co., Ltd.	37
Dennis Wire & Iron Works Co., Ltd.	3
Dominion Sheet Metal Corp., Ltd.	1
Dominion Welding Mfg.	4
Dunham Company, Limited, C. A.	5
Empire Brass Mfg. Co. Outside front cover	
Fittings, Ltd.	40
Galt Brass Co. Back cover	
Gendron Mfg. Co., Ltd.	40
Hall Zryd Foundry Co. Ltd. Inside front cover	
Hause Mfg. Co., Chas. F.	40
Hoyt Metal Co.	38
International Malleable Iron Co.	27
Jardine & Co., A. B.	33
Jenkins Bros., Limited	37
Katie Foundry.	38
Kerr Eng. Co., Ltd.	33
Marks & Co.	40
McIntyre & Taylor, Ltd.	36
Montreal General Tool Co.	35
Morrison Brass Mfg. Co. Ltd., Jas.	31
Mueller Mfg. Co., Limited, H.	25
Port Hope Sanitary Mfg. Co., Ltd.	20-21
St. Louis Technical Institute.	38
Standard Sanitary Mfg. Co.	10
Steel Trough & Machine Co.	40
United Brass Founders & Engineers Ltd.	35
Wade Iron & Sanitary Mfg. Co.	37
Wallaceburg Brass Co.	7
Warden-King, Limited.	6
Williams & Co., J. H.	38
Wolverine, Ltd.	6



Better For You Better for Users

We say "better for you" because it is so easy to install. You can get this efficient, up-to-date water heater from your jobber and install it with a minimum of delay or trouble.

This up-to-the minute fixture combines a highly efficient gas water-heater, and a strictly high-grade extra heavy galvanized storage tank. The whole is equipped with a thoroughly reliable, self-controlling self-adjusting Thermo Valve. It is composed of a few simple parts substantially assembled.

Royal Automatic

Means for the user all the hot water wanted, all that can be used, ready when it is wanted. It requires no advance notice, but is always ready with steaming, hot water fresh and clear for any use. It is free from coils and complications; it is automatic, safe, odorless, economical and silent. Requires no care and is practically immune to repair bills.

The Royal Automatic excels all other water heaters. Investigate!



ROYAL

AUTOMATIC

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Limited

Hanson St. & Hillingdon Ave.

Toronto, Canada

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario



No. 1
"TWEED"
Sanitary Closet
with mahogany
finished seat
and lid with
nickel-plated
hinges.

The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

We also make an attractive line of "Tweed" Baths and other home conveniences.

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304 University St., Montreal
Quebec and Eastern Representative

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

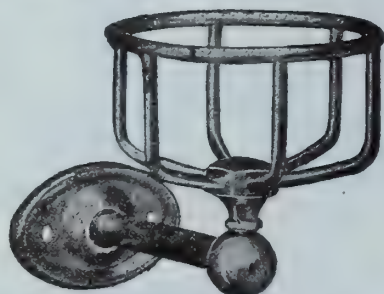
"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

Write for price lists and literature.

The STEEL TROUGH & MACHINE CO.
TWEED, ONT., CANADA Limited

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Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

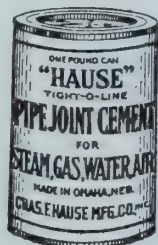
THE GENDRON MFG. CO. Ltd., TORONTO

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Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa



Chas. F. Hause Mfg. Co., Inc.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

PRIVATE LIGHTING SYSTEMS



Now is the time. You are the man—to sell and install "Scientific" acetylene lighting systems in your locality. Rural Residences, Churches, Stores, Clubs and Hotels are seeking modern lighting outfits and you can reap a good profit in supplying and fitting the gas piping and fixtures as well as the generator.

Hundreds in use in the best buildings upwards 20 years. No delicate and expensive parts that require renewing as in other systems, so that you can give a better guarantee than any others.

Send for circular and go after this business. We will assist you.

P. Campbell & Co.
Manufacturers
St. John, N.B.

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TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
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Steel Plate Work
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TORONTO

The Advertiser Likes to
Know Where You Saw His
Advertisement---Tell Him.



One Piece Porcelain Enamel Lavatory



"Beaver" Porcelain Enamelled Bath, with 1½ inch Roll Rim, for Fuller Double Bath Cock, connected Waste and Overflow. Painted exterior.

Dimensions—Width over Rim, 25½ inches; Inside Width, 22 inches; Overflow Hole, 2½ inches; Height to Top of Rim 21¾ inches; Inside Depth, 15½ inches; Supplies, 1¼ inches; Centre to Centre of Supplies, 3¾ inches.

Beaver Brand

Porcelain Enamelled Ware

The "Beaver" Porcelain Enamelled, One-Piece Lavatory is illustrated above and to the left. It has D-shaped Basin, Patent Overflow and Shell Soap Dish, on concealed brackets. Complete with N.P. Overflow, Strainer, Chain Stay, Plug and Stopper.

Dimensions—Size of Lavatory 17 x 19 inches; Basin, 10 x 14 inches; Length of Back, 19 inches; Height of Back, 7 inches.

Roughing in Measurements—Centre to Centre of supplies 10 inches; Centre of Outlet to Wall, 7½ inches; Centre of Supplies to Wall, 3 inches.

"Beaver" Porcelain Enamelled 2-Section Laundry Tub with Roll R'm, cast in one piece, with separate Enamelled Recessed Back, on painted Iron Legs. Complete with Wringer Holder, N.P. Scap Dish, Plugs and Stoppers, Painted exterior.

Dimensions—Length over all, 49½ inches; Height from Floor to Top of Tub, 31 inches; Height from Floor to Top of Back, 43 inches; Front to Back Outside, 25½ inches; Front to Back Inside, 21 inches; Depth Inside, 14½ inches.

Porcelain Enamel 2-Section Laundry Tubs

Roughing in Measurements—Centre to Centre of Supplies 10 inches; Centre to Centre of Outlets, 8 inches; Centre of Outlet to Wall 6¼ inches; Centre of Outlet to End 21 inches; Height from Floor to Centre of Supplies, 37 inches.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N. S.

AGENTS

Ontario:

Monarch Brass Mfg. Co.
71 Brown St. Toronto

Manitoba & Northwest

E. B. Plewes, 120 Lombard St. Winnipeg



"Shamrock" Porcelain Enamelled Bath



Quality

The First Consideration

A MUCH abused word—QUALITY—and yet it is the only one word that describes Perfecto Brass Goods. Careful selection of materials—perfect casting, accurate machining, particular finishing—these thing all go to make up the QUALITY of Perfecto Brass Goods. Standarized parts and absolutely uniform threads are two more features of Perfecto Brass Goods that save time and trouble for the man who instals them.

QUALITY is the reason why Perfecto Brass Goods are chosen by Canadian plumbers who know the importance of having a job well done. When you put Perfecto Brass Goods in a job you ar meaking another customer—because you are proving the QUALITY of the work you do.

GALT BRASS COMPANY LIMITED

Galt - Canada

PERFECTO BRASS GOODS



Sanitary Engineer

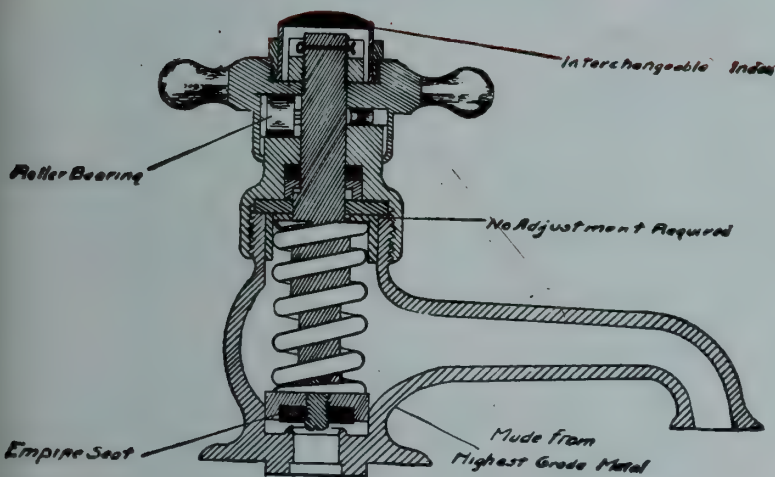
Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, JULY 15th, 1921

No. 14

Saves Hot Water and Fuel



When used on the hot water side of systems, this Empire Self Closing Basin Cock will show a marked saving in hot water, which means less fuel consumption.

The sectional illustration points out a few of its superior features, one being the specially hard nickel alloy roller bearings. These bearings will wear indefinitely.

Empire Basin Cocks are made from best quality Red metal and give long service.

We make the same pattern and shape basin cock with ordinary compression thread matching the hot water self closing cock in appearance.

Jobbers everywhere stock the Empire line of sanitary fixtures and plumbing supplies. Get in touch with one nearest you.

"If its an Empire Product you know its right."

EMPIRE BRASS MANUFACTURING CO., LIMITED

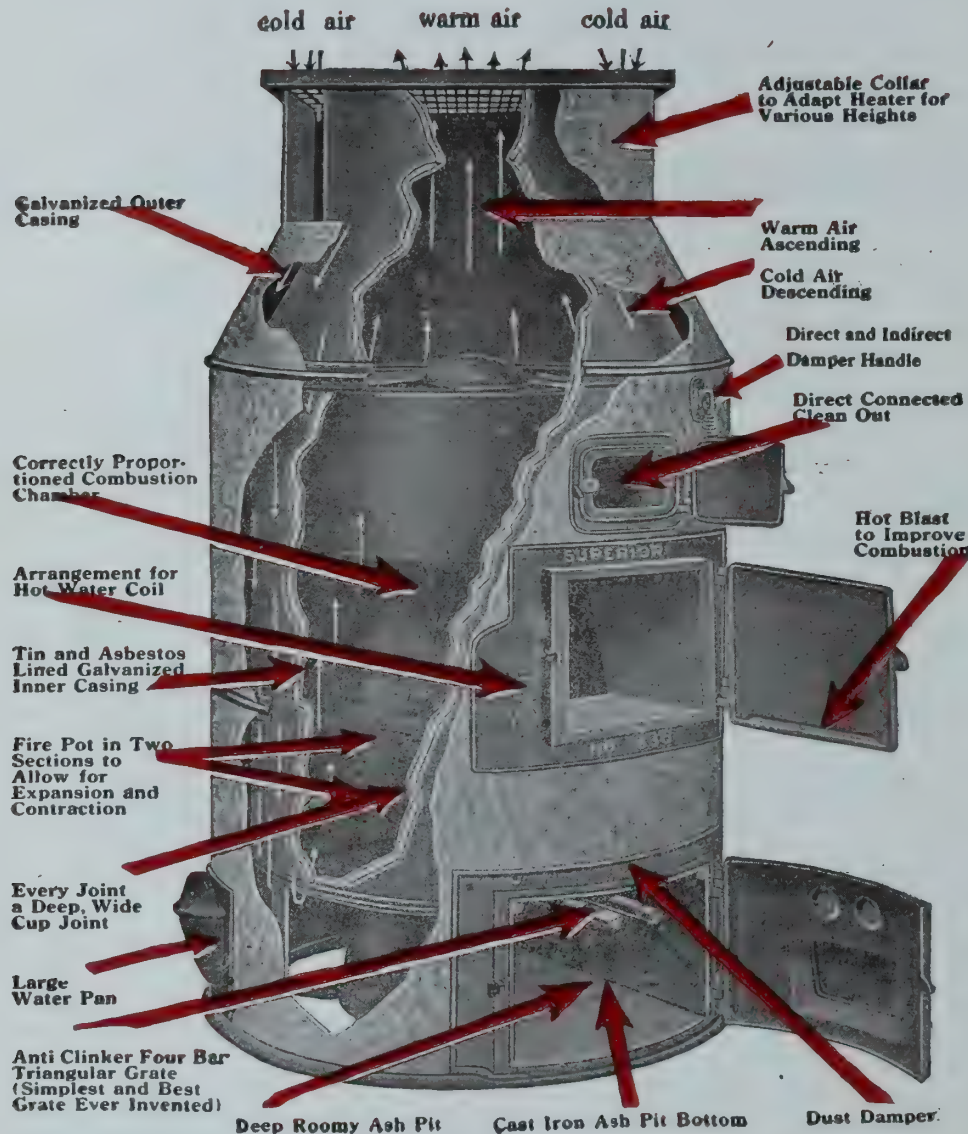
LONDON

AND

TORONTO

CANADA

Are You Selling This Furnace The "PILOT"



It is the Original Pipeless Furnace

We have reprinted in recent advertisements letters indicating the satisfaction the "Pilot" Pipeless Furnace is giving. Underneath we print more.

But besides satisfied customers the "Pilot" gives the dealer a generous profit and is the best proposition on the market.

Send for complete details.

The Best Recommendation

264 Queen St., Stratford, Ont., Feb. 26th, 1921

Mr. F. L. Duggan, City,

Dear Sir:—The 836 Pilot Superior Pipeless Furnace which you installed for me last September has given me splendid satisfaction and up to the present time I have not burned three ton of coal.

Yours truly,

J. W. Finch,

The Hall Zryd Foundry Company, Limited

Manufacturer of Pilot Stoves, Ranges and Furnaces

Western Branch: Post Office Box 687 Winnipeg, Manitoba

Hespeler,

Ontario

WISE ECONOMY !

DIRECT SHIPMENTS GALVANIZED SHEETS

We carry in stock 2,000 tons

Premier Galvanized Sheets

All Standard Sizes in Gauges Nos. 14 to 30

We ship direct at no extra cost, saving freight
damage and time.

Jobbers who use our service are saving money
and making money.

SO ARE MANUFACTURERS !

DOMINION SHEET METAL CORPORATION, LIMITED

HAMILTON, ONTARIO



Are We Right

*Plain Talk
Etc.*

*Anybody can cut prices, but it takes
brains to make a good article.*

*Time wasted in cheapening would
pay for many a good job.*

Yours for Efficiency and Service

CANADIAN BRASS COMPANY, LIMITED

GALT

TORONTO

*Electric Weld***New****Guarantee**

In the past we have replaced a defective boiler with a new one, but we have now authorized the jobber to not only replace any boiler that proves defective on installation, but to also pay the plumber who has found it necessary to make the replacement, the sum of **TWO DOLLARS (\$2.00)** in cash

We are sure this policy of co-operation will meet with your approval and suggest that in your next order for boilers you specify "Electric Weld" and secure the benefits of this generous replacement policy

**Pays For
Plumber's
Time**

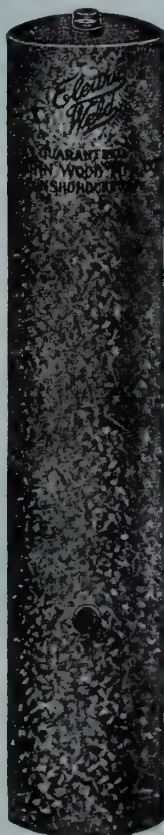
**Replaces any
Defective
Boilers with
New Ones**

The Canadian John

Grand Trunk Railway and
TORONTO

Wood Mfg. Co.
Limited

Hillingdon Avenue
CANADA

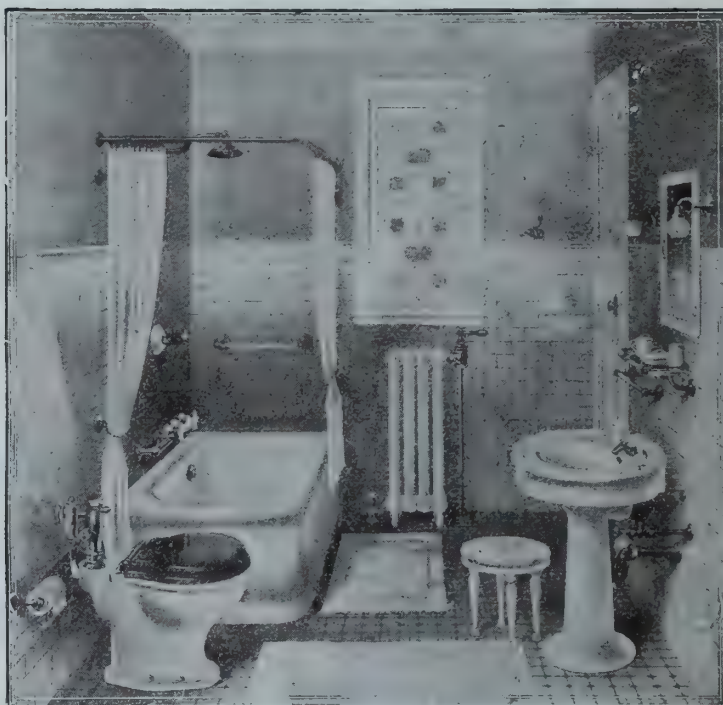
*Electric Weld**Electric Weld*

CRANE SERVICE

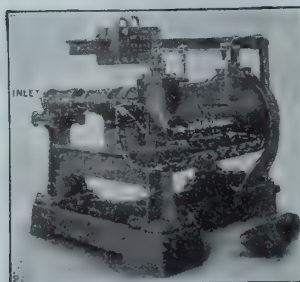
places within your reach, through numerous show-rooms and branches, the most advanced ideas on

Heating and Plumbing Equipment

FOR BUILDINGS OF ALL KINDS AND SIZES



*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe,
Plumbing and Heating Supplies.*



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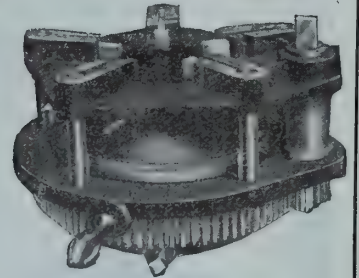
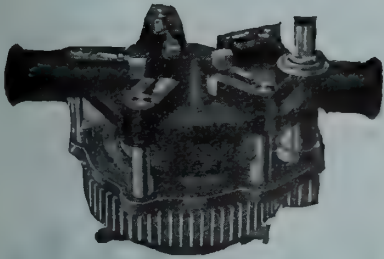
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Limited**
Head Office and Warehouse:
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MANCHESTER, BIRMINGHAM,



JARDINE



"Jardine" & "Toledo" Pipe Threading Tools

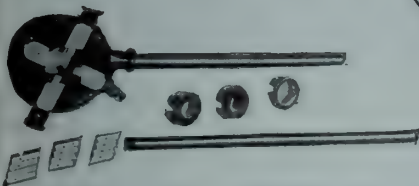
Every Sanitary Engineer will appreciate the unusual qualities of these tools. There are no complicated parts to get out of order and the dies only cut with the mouth of the cutter. The proper taper can be made, the dies opening out as the tool advances on the thread.

All friction is eliminated and every ounce of strength is used in making the cut; time and labor is saved in this way.

These are but a few of the many valuable features of these tools.

Write to-day for our illustrated catalogue, which gives further particulars in detail.

We are the sole makers of "Jardine" Pipe Threading Tools and sole licensees to make and sell the "Toledo" machine.



Brockville and East
J. R. Devereaux & Co.
New Birks Building
Montreal, Quebec
Winnipeg and West
Stanley Brock Limited
Winnipeg, Man.

District Agents west of Brockville
W. H. Cunningham & Hill Ltd.
269 Richmond St. W. Toronto

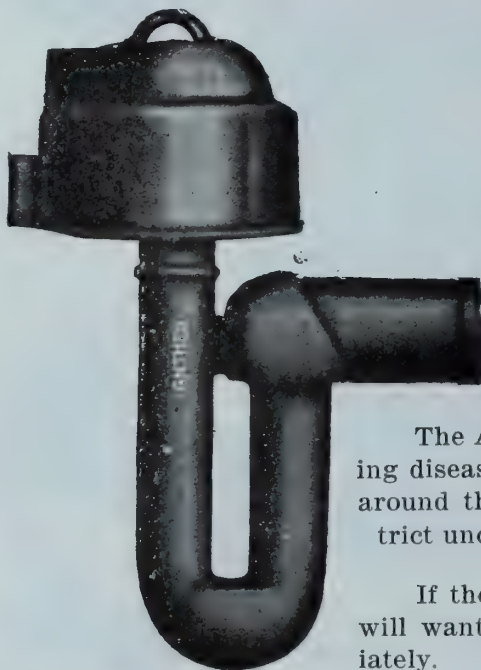
A. B. Jardine, Limited

Hespeler, Ontario

Good Health

vs.

Ill Health



The ANTHES Syphon is a real missionary in preventing disease and bringing good health. Disease is lurking around the homes of hundreds of prospects in your district unconsciously to them.

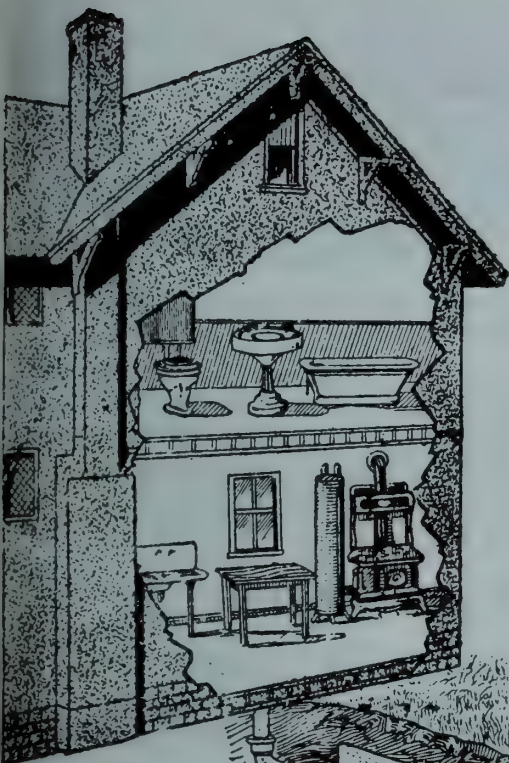
If the health question is laid bare before them many will want conditions about their home remedied immediately.

Does not the importance of proper sewage disposal impress you when we point out that the death rate from typhoid fever in the country is five times as great as it is in the cities.

On the farm where space and fresh air are in abundance you may well say "can this be possible?" It is, and the cause of it is directly due to the lack of proper sewage disposal. And in the majority of instances where the sewage is not adequately taken care of the water in the wells is contaminated.

But the ANTHES Syphon makes city conveniences possible in the rural districts.

During 1920 over 800 were installed in Ontario alone.



Success in Saskatchewan Where Climate is Severest

PERFECTLY SATISFIED

COPY. Stalwart, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Gentlemen:

I am perfectly satisfied with your system of sewage disposal.

See no room for improvement; no trouble at all.
Certainly a boon for the farmer, and all.

Yours very truly,
(Signed) W. H. ETTER.

Balcarres, Sask.

The septic tank is working O. K. Too much praise cannot be given it if it always works like it has. And the comfort of it cannot be told in words.

(Signed) S. STEPHENS.

WORKING FINE

Kenaston, Sask., Nov. 25th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:—

In regard to my septic tank, I can highly recommend it, as it has been working fine ever since I have had the plant put in.

It has never frozen nor has it refused to work.

I must say that the system has given every satisfaction.

Wishing you every success,

I am, yours very truly
(Signed) HUGO TIETJENS

PUT IT IN LATE IN THE SEASON, BUT

COPY. Cotton Woods, Nov. 28th, 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dears Sirs:

In answer to yours I might just say that so far the Septic Tank system of sewerage is a success.

I have not as yet found any deficiency in either construction or operation.

We have used the system for about six weeks, beginning just one week before freeze-up. It did not even get a fair chance, but as yet it has withstood the frost, being covered to the depth of six inches with clay earth. I spread strawy fresh horse manure over the disposal bed to a depth of one foot, and everything is working well so far.

I would highly recommend this system of sewage disposal to every farmer.

Sincerely yours, W. THOMPSON.

HAS NEVER TOUCHED IT SINCE INSTALLING

COPY. Imperial, Sask., Nov., 1919.
The Anthes Foundry Ltd.,
Winnipeg, Man.

Dear Sirs:

The system I have has been working satisfactorily.

I have had nothing done to it since it was installed, and everything is in perfect order as near as I can see, in fact I have never given the system a thought.

(Signed) O. D. JOHNSON.

Balcarres, Sask., April 5th, 1921.

I had no trouble from freezing. I do not know of any improvements that could be made. Everything works fine.

(Signed) THOS. STEPHENS.

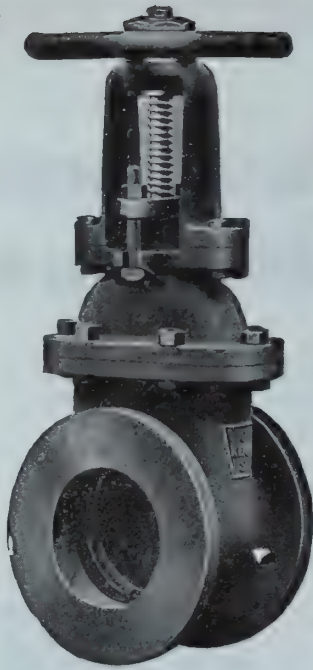
Bring the health question right home to your prospects and it will result in many new installations and profitable business. We have bulletins recently prepared containing useful information that will be valuable to you. Kindly instruct us to send them.

Anthes Foundry Co., Limited

Manufacturers Cast Iron Soil Pipes and Fittings

Jefferson Ave., TORONTO

Saskatchewan Ave., WINNIPEG



Kerr Valves

**Give
Character
to Work**



They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them. Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing-box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers

-

Walkerville, Canada



Can You Afford Any Losses This Year?

"ALLPRISER" keeps Your Prices Right

Now more than any time is it necessary to watch your prices. Competition is keen and quotations are figured way down to the lowest notch.

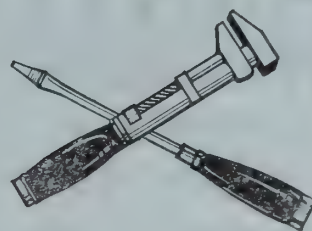
One mistake might spoil the whole profit on a big job. Don't run any risk; use "Allpriser" the reliable pricer.

Allpriser Service consists of a flexible, leather bound book 7 in. by 9 in. of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

Kenneth B. Allison

4 Irwin Ave., Toronto

What Two Tools And Two Men Did To One Boiler



Briefly they set up in business.

For doing which those two men got themselves very much disliked by the coal men. An investigation proved that every time one was set up; the coal man's business gets a set back.

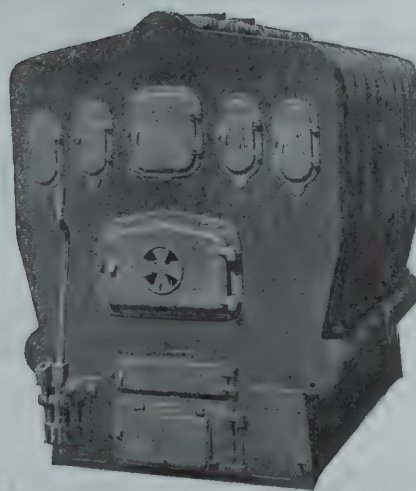
When I asked the two men about it, they said the Burnham's digestion was so dog-gone good that it could do more work on less coal than the others.

After which I wrote a letter of condolence to the coal men and told them not to shut up shop as the Burnham would always be using some coal.

Which you'll agree was a very cheering Christian-like thing to do.

And before I forget it, next time I want to tell you how Sir Walter Raleigh weighed smoke.

By Booster Binx



ROYAL BANK BLDG.
TORONTO

Lord & Burnham Co. Limited
of Canada

Boiler Department

Factory:
St. Catharines, Ontario



SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, JULY 15, 1921

No. 14

CONTENTS

Extent of Plumbing and Allied Industries	13
Is Against Fixing Plumbers' Wages.....	14
A Letter to Prospects.....	14
Suggestions For Timely Advertising.....	15
Questions and Answers.....	16
Patterns For Range Conopy.....	17
Editorials.....	18
Sewage Disposal For Small Communities.....	19
Education of the Plumbing Apprentice.....	22
News From Here and There.....	23
Trades, Construction and Contracts.....	23
Market Conditions.....	24

The MacLean Publishing Company, Ltd.

JOHN BAYNE MACLEAN, *President.*H. T. HUNTER, *Vice-President.*H. V. TYRRELL, *General Manager.*

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THE "PUSSYFOOT"
SILENT — EFFICIENT — DURABLE



'Pussyfoot' Closet Tanks

Combine skilled design with handsome finish and satisfies the most exacting. Like all **Canada Metal Products**

The Pussyfoot

IS

"The Acme of Perfection"

WHY

'Pussyfoot'

Examine a Pussy Carefully

Note the excellent wearing quality of the Pussy's foot, it lasts a life time.

NOTE how silent and efficient.

Then EXAMINE a PUSSYFOOT CLOSET TANK.

NOTE the excellent wearing qualities and the life long guarantee.

NOTE how silent and efficient.

Specify to Your Jobber

"Pussyfoot" Closet Tanks—"Aristocrat" Laundry Tubs — "Easy" Wiping Solder — "Imperial" Soldering Paste

THE CANADA METAL CO., LIMITED

HAMILTON — MONTREAL — TORONTO — WINNIPEG — VANCOUVER



Individuality

The individuality of the owner should be expressed as truly in the bathroom as it is in other rooms of the house.

A bathroom of beauty, in daily use, will be a source of constant pride and satisfaction to the customer to whom you recommend it.

"Standard"

PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Calgary:
325 Eighth Avenue West

Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
20-28 Jackson Street West

Montreal:
New Birks Bldg.

Vancouver:
860 Cambie Street

"Made In Canada"

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XV.

TORONTO, JULY 15, 1921

No. 14

Extent of Plumbing and Allied Industries

Plumbing, Heating and Tinsmithing Industries to Number of 1963, Employing 11,935 Employees Manufactured Products Valued at \$47,009,238—
Interesting Statistics Showing Size of Industry in Which Sanitary and Heating Engineers Are Engaged.

AN extensive report just secured by Sanitary Engineer from the Dominion Bureau of Statistics showing the operations of plants engaged in plumbing, Heating and tinsmithing during 1919 gives some interesting facts concerning this industry which will be interesting to sanitary and heating engineers and tinsmiths.

The report covers the operations of 1,963 individual plants distributed by provinces as follows:—Ontario, 845; Quebec 534; Manitoba, 136; British Columbia, 113; Nova Scotia, 95; Alberta, 95; Saskatchewan, 78; New Brunswick, 50; Prince Edward Island 16; Yukon 1.

The quantity and the cost value at the works of all material used during the year is shown as follows:—

Tinplate.....	333,367	boxes	\$ 6,688,945
Terne plate.....	5,102	boxes	107,107
Galvanized iron.....	13,693,606	lb.	1,418,141
Lead pipe.....	1,233,842	lb.	197,402
Iron pipe.....	10,974,828	ft.	1,506,228
Solder.....	975,667	lb.	394,112
Packing.....	57,501	lb.	20,889
Acid.....	27,890	gal.	51,087
Gasoline.....	201,197	gal.	75,838
Radiators.....			1,172,654
Furnaces and parts.....			1,477,547
Fillings, valves, etc.....			640,655
Unions, elbows, etc.....			612,855
All other materials.....			10,177,529

Total Cost of Materials.....\$24,540,989

The selling value of the products of the industry and the value of work done during the year is given in the summary as follows:—

Cans.....	\$13,869,033
Kitchen utensils.....	2,906,189
Dairy utensils.....	1,109,404
Stove and furnace pipes.....	736,081
Eave troughing and cornice work.....	708,264
Roofing, tin and galvanized iron.....	2,605,786
Plumbing and heating.....	9,362,458
Gas and steam fitting.....	2,981,182
Sheet metal work.....	1,733,085

Collapsible tin tubes.....	141,263
Custom and tinsmithing repairs.....	2,447,983
Plumbing and heating repairs.....	5,871,516
All other miscellaneous products, not specified.....	2,536,991

Total Value Goods Made and Work Done....\$47,009,238

Number of Employees

Some idea of the immensity of this industry is gleaned from the statistics of the number of employees, salaries and wages paid. Officers, superintendents and managers (male) number 605, (female) 23. These draw salaries of \$1,159,357. Clerks, stenographers, etc. (male) 597, (female) 346, drawing salaries of \$893,827. Wage earners, average number 9,555 (male), 734 (female) drawing wages of \$9,564,320. Outside piece workers number (male) 69, (female) 6, with wages of \$19,362. This makes a total of 10,826 male employees, 1,109 female employees, and total salaries and wages paid of \$11,636,866.

A classification of employees according to weekly wage earnings shows that there are 2,377 earning \$30 per week and over; 663 earning \$28-\$30; 1347 earning \$24-\$28; 1582 earning \$20-\$24; 2,176 earning \$15 to \$20; 1805 earning \$10 to \$15; 1499 earning \$5-\$10; and 165 earning under \$5 per week.

Capital Investment

The amount of capital invested in the industry is summarized as follows:—Ontario, total \$14,502,026; Quebec, \$8,552,714; Manitoba \$2,007,443; British Columbia and Yukon \$2,908,631; Nova Scotia \$993,035; Alberta \$852,748; Saskatchewan \$916,080; New Brunswick \$413,937; Prince Edward Island, \$111,601. Total capital investment is \$31,258,215, divided as follows:—land, building and fixtures \$8,159,593; Machinery and tools \$4,905,023; Materials on hand, stocks in process etc. \$8,774,909; Cash, trading and operating accounts etc. \$9,418,690.

It is therefore evident that products to the value of \$47,009,238 were made from materials which cost \$24,540,989 by 11,935 employees in 1963 establishments, these employees drawing \$11,636,866 for their services.

IS AGAINST FIXING PLUMBERS' WAGES

Ottawa Board of Control Will Not Fix Pay of Plumbers and Steamfitters for Civic Fair Wage Schedule.

The Ottawa Board of Control has for plumbers and steamfitters decided against fixing the pay for the civic fair wage schedule. It had previously reported to council in favor of an eighty-five cents an hour rate an increase of five cents per hour over last year. Council however, sent it back.

Controller Cameron made a strong plea for the 85 cent rate, claiming that so many had signed for this that the rate was established. Controllers Ellis and Balharrie thought the city should make no change from last year's figures till the strike had been settled one way or the other and this was agreed to. A representative of the master plumbers promised that an effort would be made

to have an agreement reached as soon as possible.

Of no little interest is the following letter to the public, from some of the master plumbers, published in the newspapers, a day or two previous to the Board of Control meeting: "Are you paying enough for plumbing and heating? The Board of Control, your representatives, custodians of your money, answer 'No' and are recommending to the city council that an increase be granted to the plumbers and steamfitters, in spite of the fact that the laborers, carpenters, brick layers, and, in fact, all the building trades, have accepted a reduction of from 10 to 15 per cent., or settled on last year's basis.

"It is your fight. Are you satisfied to pay more? The Board of Control, by their recommendation to council, answer this question for you and say 'Yes, you must.'

"The council will undoubtedly reject this recommendation, if you strenuously show your disapproval. The following employers, who engage 85 per cent. of the plumbers and steamfitters under ordinary conditions, are fighting this strike to give the public a reduction in plumbing and heating work, and stimulate the building industry.

"Plumbers and steamfitters rate last year was 80 cents. With the cost of living falling, why should it be increased?"

The letter is signed by the following: McKinley and Northwood, Holloway and Son, Coldrey and Chapman, Gauthier and Company, W. G. Edge, Limited, J. R. McLennan, A. Archambault, L. Gendron and J. Fitzpatrick.

"PUSSYFOOT" CLOSET TANKS.

A booklet illustrating and describing the "Pussyfoot" closet tanks is now being distributed to the trade by the Canada Metal Company, Limited. This company manufactures several lines of tanks for this purpose, which are completed through the addition of special "Pussyfoot" fittings, including silent ball cock, lever action, and syphon jet bowl. This catalog describes the "Pussyfoot" closet tanks in three finishes, oak, white and mahogany. The "Pussyfoot" valve action is featured in the booklet, as well as the various sizes and designs of these products.

HAMILTON STOVE CATALOG NO. 78.

The latest stove catalog No. 78, of the Hamilton Stove and Heater Company, is now ready for distribution, with net trade price list No. 78 applying to same. "Souvenir" stoves and ranges illustrated are designed to meet any requirement and include various classes of kitchen steel ranges, for the home, cook stoves, hotel kitchen ranges, combination cast iron cook stoves, the two-in-one souvenir heating, cooking and baking stove, parlor heaters, brick-lined heaters, van heaters, and van cook stoves, laundry stoves and many other lines.

This 40-page catalog of "Souvenir" products contains useful references to the ordering of repair parts, and timely foreword as to service, terms and shipments. The various designs in stoves and heaters are suitably illustrated, with full descriptive matter giving dimensions, weight, and reference numbers. The Hamilton Stove and Heater Company Limited, are successors to the Guernsey, Tilden Company, with factory at Hamilton, Ont.

A Letter To Prospects

When recently commencing in the plumbing and heating business in Ottawa, the firm of May & Pattison conceived the idea of sending out a personal letter to business prospects in the district, acquainting them with the firm name and its service. This letter contains some good points and is reprinted in full as follows:—

Dear Sir:

You need three things when you are looking for plumbing and heating service. These are experience, promptness and honesty.

We have both gained our EXPERIENCE through long association with Mr. J. T. Blyth, who for twenty-three years, as you are well aware, conducted a thoroughly reliable and progressive plumbing and heating business in this city. For some considerable time we have individually been carrying on business, during which period we have gained not only increased experience, but a gratifying degree of patronage. We feel that by joining forces we shall be in a position to give even better service than formerly.

PROMPTNESS is at times as essential in the plumbing business as in the Medical Profession. We have two motor cars, business and house telephones. If you take a map of Ottawa and put your finger in the very centre of it, you will be pointing right at our store at 480 Bank St. near Gladstone Ave. We can serve you promptly no matter where you live.

HONESTY. Please do not smile. This is the bed-rock of our business. Honesty may mean telling you frankly that some dilapidated plumbing fixture or pipe work SHOULD BE SCRAPPED even when to remain silent would mean a large repair bill in our favor. Honesty means that when we undertake to heat a house to 70 degrees at 20 below zero, the goods and labor are there every time to fulfil our contract. Honesty means to be just to ourselves as well as to our customers; To obtain a fair price in order to enable us to grow in business and always be in a position to render more efficient service.

We are young, ambitious, willing and eager, always studying and learning better ways and methods. There is no standing still in this or in any other business, and we are not standing still.

What we do know and what we have to give are now and always at your service. PLEASE TRY US.

Yours respectfully,

Suggestions For Timely Advertising

Helpful Pointers Contained In Advertising of Other Plumbing and Heating Engineers Designed to Encourage Business from Prevailing Sources Pending Revival of Building Activity.

WITH the continued shortage of new building and no definite prospects for an early revival in this industry, plumbing and heating engineers are turning more attention to the possibilities of developing business from other sources, by means of the wider use of advertising in its various forms. One of the chief mediums is the use of the newspaper which covers the district it is desired to reach, this effort being in some cases backed up with letters sent to prospects and the distribution of other literature. To help plumbing and heating engineers in the preparation of effective advertising copy the following statements, taken from advertisements as used by others in this industry should be of assistance.

Under the heading "Sanitary Plumbing" an ad by the Port Colborne Supply Co., Port Colborne, Ont., states "Plumbers sell sanitation. Homes have sanitation or they do not—there is no half-way mark—and civilization cannot progress rapidly unless there is complete sanitation in every household. Thousands of homes are now healthy, happy and livable through the promotion of sanitation by good plumbing.

"Yet there are abundant opportunities where sanitary equipment is badly needed. Our business is to fill that need. A word from you and we will be ready to serve you."

This ad. touches on one of the most important factors in the advertising of plumbing goods, namely, the important part which plumbing plays in our modern civilization, and the happy, healthy homes which result from the use of efficient plumbing.

An Early Bid For Furnace Work

Heating engineers are making an early bid for furnace and kindred work at this time. An ad. by McKinnon, Heating and Plumbing, Kamloops B. C., says:—

"GET THE FURNACE READY NOW for next winter's needs by having the pipes repaired and put in shape, the damper adjusted and perhaps renewed, the body of the furnace patched or otherwise cared for. Our tinning and sheet metal work insures you a perfect working furnace for the next cold spell. We specialize on heating systems."

Plumbing Is Used The Most

Asking the question "What other part of the house is used as much as the plumbing, and assuming that the logical answer is that no other part is used as much, an ad. by Chas. Kirk Co., Winnipeg, continues: "The plumbing therefore should be the first thing for the prospective home builder to consider. An otherwise comfortable home gives little

satisfaction and comfort if it lacks the best plumbing and sufficient warmth on coldest days, or is too hot in milder weather, or the water taps spring leaks just when you think they should not.

"Putting in the best plumbing and heating systems available is the pleasurable part the Chas. D. Kirk Co. will take in the making of your new home. An example of the company's work will be seen in the model bungalow to be shown at the ————— exhibition.

"Good plumbing and heating systems are not a luxury or an extravagance, but a paying and lasting investment. Not only will they give you satisfaction in service but you may be proud of them when showing your new home to friends.

"The proof of the work we can do finds only a small illustration in the bungalow at the ————— exhibition. Not only do we instal plumbing and heating in small homes but ours is a service that is taking care of installations in large schools and other buildings. The knowledge we gain on the larger jobs we can apply to the best possible advantage on the jobs of more moderate size. May we have the pleasure of figuring with you on your new home?"

This ad was run in 1 col. space in large type and on account of its conversational style it was easy to read. Its subject matter is good in that it touches on some of the important phases of plumbing, making an appeal for good plumbing in houses and buildings now completed, and also appealing for business from new construction being planned.

"An Investment In Sanitary Plumbing Yields A Dividend of Good Health"

This is the brief statement made in a 2 column ad. by Knapman Plumbing and Heating Co., Blairmore, Alta., which gives the reader something to think about.

Water Systems For The Farm

Under the heading "Water for your farm at the turn of a tap", an ad. dealing with water systems, by Bryne Bros., Toronto, states "Our complete Plumbing Systems end drudgery and protect your home. Why not a city bathroom in your farm home? Or the comforts of hot and cold water which can be turned on in a moment in kitchen, laundry, barns or garage? Our new catalog and price list describe the complete plumbing systems we are installing in country residences."

Questions and Answers

AIR PASSING THROUGH PIPES

(Question) Will you please show us by formula the number of cubic feet of air that will pass through a 3 in., 4 in., 5 in., 6 in., 7 in., 8 in. pipe 20 inches long that will discharge when same is in a perpendicular position surrounded by the gasses of combustion at the different temperatures of 100 150 200 250 300 350 400 450 500 550 600.

Also tell us the number of sq. inches there are in the circles shown at which is marked No. 1, also the area of the segment of the circles shown in No. 2.—Sanitary and Heating Engineer, Ottawa, Ont.

(Answer) The quantity of air which will pass through a pipe of a given size in a given length of time will vary with the velocity of the air current.

At temperature below 150 degrees the rate of velocity is materially affected by the differences in the temperature of the air in the tube and that of the surrounding atmosphere. At an excess temperature of 150 degrees, the velocity in the tube will be almost at its maximum, viz., 889 linear feet per minute. At higher temperature it will not reach much more than this; so for all practical purposes we may consider that the average velocity will be 900 lin. feet per minute, at all of the temperatures listed.

The allowance that must be made for friction is:

H equals 0.000000089 L-D V²

when H equals Loss of head in feet

L equals Length of pipe in feet

D equals Diameter of pipe in feet

V equals Velocity of flow through pipe in feet per second.

Thus for a pipe 3 inches in diameter, according to the above rules, we find that the amount of air discharged per hr. is .05 x 900 equals 45 ft. per minute.

Now when we make a deduction, because of friction, we find that the quantity of air is reduced by .07 feet.

Regarding the questions asked re the number of square inches contained in the figures illustrated by your drawing:

Fig. 1 contains 247 sq. inches.

Fig. 2 contains 165 sq. inches.

UNIQUE HEATING SYSTEM

(Question) I am taking the liberty of writing you for your opinion of a heating system I have in mind: The system might be called a forced hot air heating system. My idea is to take an ordinary hot air furnace and case it, similar to the ordinary furnace but instead of the air flowing into registers in the rooms force it by means of a fan in the top of furnace through small pipes to radiators in the rooms and return to bottom of furnace the same as done with hot water.

My idea is to have a system that would have the advantages of hot water

be less expensive and no danger of freeze up or bursts and the consequent damage when such does occur. The pipes and radiators could be made of gal. iron and the joints soldered or otherwise made air tight. Will a radiator heated with hot air give off as much heat as if heated with hot water or steam. I have not done any experimenting yet as I want your opinion first.—Western Heating Engineer.

(Answer) Although there may be certain difficulties in the way of detail, we believe a system of heating such as that described in your letter could be developed along the lines suggested.

It appears to us as though much of the success of the apparatus will rest with the design of the furnace casing; the type of radiator used; and the size and disposition of the air circulating pipes.

We must first take up the question of the efficiency of a warm air radiator made of sheet metal. In this connection it may be said that the efficiency of the radiator will be in proportion to temperature of the air which passes through the radiator.

Now, it is not at all likely that with a fan forced system that the temperature of this air will be more than 120 degrees above zero, Faht. And assuming that this is the temperature at which the apparatus is to operate we may consider that the radiator efficiency will be about 80 B. T. U. per square foot per hr. This is about 52 per cent. of the efficiency of a hot water radiator.

When we refer to the matter of the air temperature we find that the casing of the ordinary portable furnaces provides a greater free way for the passage of air than we shall require; therefore we must provide a sufficient number of baffle plates for the purpose of holding the air to a close passage over the heating surface of the furnace.

The size of a pipe delivering air to a radiator must be in proportion to the temperature drop of the air, and to the velocity of the air passing through the pipe.

In a system such as this we can not figure for anything more than a drop of ten degrees; therefore, the quantity of air required will be 440 cubic feet per hr. per sq. ft. of radiator.

Now, an air velocity of much less than 1500 feet per minute will not exert enough force to establish any circulation through the system of piping, etc. This means that for one square foot of radiation that there is required a pipe area of seven-tenths of an inch. A radiator of one hundred square feet of surface would require a 3 in. feed and return pipe.

Of course, the pipe sizes would have to be set so that the highest pipe velocities would be in the mains close to the furnace. That is, the pipe sizes must be equalized to provide for the friction caused by offsets etc. For instance, if you had an installation of 10 radiations of one hundred feet each, it would not be necessary to make the main supply equal in area to the ten 3 in. pipes. What would be actually required is a pipe providing sufficient area to convey the required air at a velocity of 2500 feet per minute.

Lower Costs May Help

Building operations throughout Canada for the month of June showed a falling off from May by \$422,700. Contracts made in June were \$26,436,000, compared with \$26,859,500 in May.

Building activity for the first six months of the year compares very favorably with the same period of previous years, the total investment represented in new buildings up to July 1st of 1921 being \$111,763,500, which is 8 per cent. ahead of the showing at the end of the corresponding period of a year ago. Residential building continues to be active, the contracts let during June for buildings of this nature reaching \$7,943,600, or 30 per cent. of the total. Business buildings amounted to \$10,027,800, or 37.6 per cent.; industrial buildings reached \$458,700, or 1.7 per cent., and public works and utilities \$8,006,700, or 30.4 per cent.

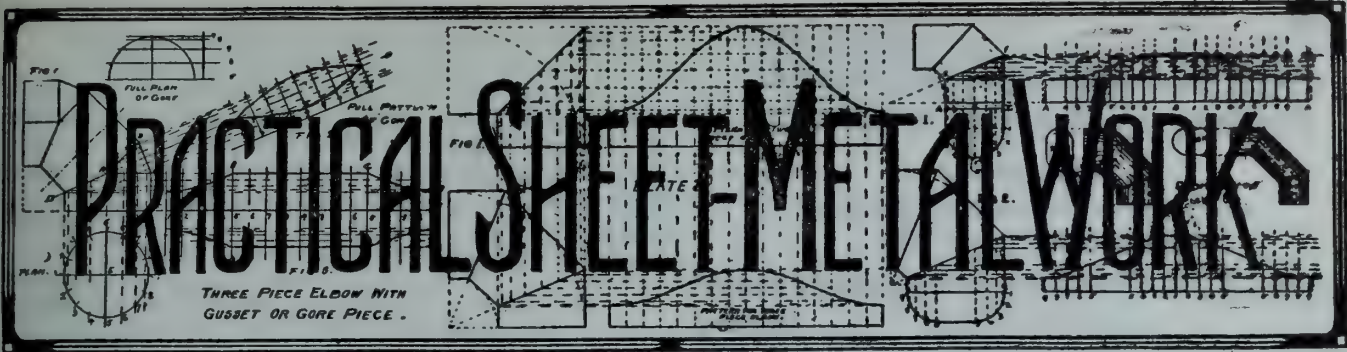
The table following shows the building for June, according to provinces:—

	No. of Projects	Value.
Ontario	1,027	\$ 7,506,830
Quebec	360	6,861,100
British Columbia...	292	5,091,500
Alberta	167	2,776,000
Manitoba	231	2,214,700
Saskatchewan	103	1,188,100
Nova Scotia.....	69	411,600
New Brunswick....	35	368,000
P. E. Island.....	5	19,000

Total for

Dominion2,289 \$26,436,800

The wholesale price index of 48 building materials declined 4.4 points during the month, making a total drop of 23.5 per cent. from the high building cost of May, 1920. Architects report that in many instances bids are being received from contractors at a lower price than the architect's estimates, and this indicates that material and labor costs have receded to a point where a substantial increase in activity may be expected.



Patterns For Range Canopy

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri

Answering any inquiry for a layout of a range hood, the following may give the development:

Not having any design of hood to go by, the enclosed sketch will show what we are making in this case.

The length and width and the height can all be made to suit measurements of the job.

First draw the section through front as 1-7 with a 24 inch projection. Divide this in equal parts as shown.

Next draw a section through end as 1'-7' to any desired curvature, making the sweep in section through front.

Now from each point as 1-2-3-4, etc., of section through front, project horizontal lines into the section through end, and this will give points 2'-3'-4', etc.

Observe this will make a butt miter and that the section through end is nothing more or less than the cut on the ends of the pattern for back.

To set out the pattern for front, observe we pick the girth from section through front, by picking spaces 1-2-3-4, etc., to 7 and set off below as 1-7.

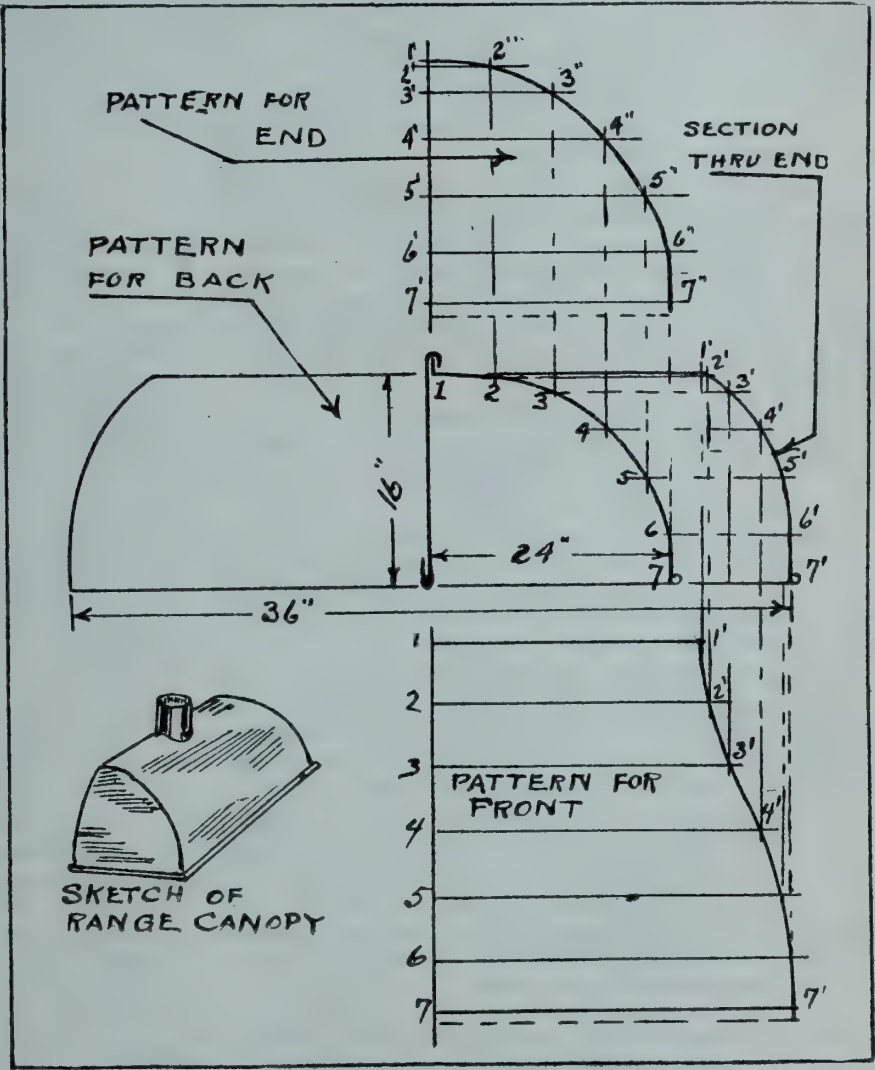
Draw stretchout lines from these points and then from each point as 1'-2'-3'-4', etc., of section through end, drop lines thereby intersecting lines of similar number.

Through these points, trace the uniform curve and you have the half pattern for front.

Observe this accounts for the full girth required to span the front and cuts the miters on the ends to suit the curves shown.

To set out the pattern for end pieces, pick the girth from the section through end, as 1'-2'-3'-4', etc., and set off above elevation.

Draw stretchout lines and then from each point in the section through front, erect lines crossing those in pattern of similar number.



This gives points 2'-3'-4'-5', etc. Sketch a line through these intersections and you have the pattern. Observe the width of this and pattern must be equal to the section through front, while it must have a length of the curve in the section through end.

By reasoning these things out in this way, the procedure is quite clear and it saves developing a plan with the change of profile. Laps for seams must be allowed extra and all joints, also for wire edge.

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NOBLE ORDER OF THE "ONE IN SIX"

THE advice is now being handed out to sanitary and heating engineers to go out and "dig" for business in order to maintain a fair volume of trade during the slackness in building. All branches of trade find they have to "dig" a great deal more these days than ever before, and this point is well illustrated in an incident recently outlined in a magazine under the heading "The Noble Order of the One in Six," by Bruce Barton, as follows:—

The doorbell rang and I opened the door to find a colored man on the step.

"Your back fence needs fixing, sir," he said politely, "I am a carpenter and I will put it in first-class shape for ———." He named the sum.

Now, that fence has needed fixing for a good long time and many carpenters complaining that things are slow have passed my door. But it remained for this unknown colored man to elect himself to the job.

I gave it to him with my blessing.

A few weeks earlier I had been visiting a friend in B——— when a similar thing took place; this time it was a plumber who called.

"How is your hot water?" he asked, knowing well enough that there is always something the matter with everybody's hot water. He too found a job for himself not only in my friend's house but in half a dozen other houses along the street.

Henry M. Stanley, in his autobiography, tells of the boys who were his fellow inmates in the workhouse where he spent his youth "The fat-witted majority" he says "were just six times more numerous than the boys with energy and initiative."

"This proportion of one in six is very common in the world," he continues, "In ships that I have sailed in, among the military companions with whom I have campaigned, among the blacks and whites of my African expeditions, in the House of Commons, the leaven of one in six seemed to be required to keep things rigly going."

The saving one in six—the noble order of Go-Getters—the blessed little remnant of those who do not wait for things to straighten out but resolutely set themselves to straighten them out—how much more they are needed today than ever they were before.

Workmen bewail slack times, but the colored carpenter who called on me and the plumber who called on my friend, have all the work they can do.

Business men grumble about this and that; but the members of the Noble Order of One in Six are

wasting no time in grumbling; they are busy getting men and machines into motion again.

Nor is this the first time that the world has been askew. The Jews returned to Jerusalem many years ago to find the walls broken down, the city in ruins. It was a hopeless proposition, so the grumblers said; but a gentleman named Nehemiah thought otherwise. He set each man to building the little piece of wall over against his own house.

"So built we the wall," he tells us, "—for the people had a mind to work."

Being willing to work and having a mind to work are two quite different qualities, I take it.

The world is full of folks these days who are willing enough, if work is brought their way; but here and there an ardent spirit has a mind to work and thinks out a job for himself where no job was before.

"It is by the increase of these ardent spirits that the world will be rebuilt. We are weary of campaigns but we really need one more—a whole hearted drive to double the membership of the glorious company of Self-Starters—the Noble Order of the One in Six.

EDUCATING THE APPRENTICE

IN connection with the active steps being taken at present to elevate the status of the plumbing trade, due thought should be given the future, for no matter how rapid the process, it will take years to bring this industry to the level of importance, in the public estimation, which it deserves. In planning for the future one of the most important factors is to give attention to the education of plumbing apprentices of today in order that they will be under no handicap in this regard in future.

In the plan of education it should be impressed upon these apprentices that efficient plumbing is the most important part of a house. Unfortunately people have become so accustomed to the sanitary conveniences that they never stop to think what would be the condition if all plumbing was removed from our homes and buildings. The modern home, factory, school, theatre, office building, hospital, cannot be successfully operated without an efficient system of plumbing and drainage.

When the importance of this industry is realized the apprentice should take advantage of every opportunity to study metals and the effect of water upon them, study mechanical and architectural drawing, learn the principles of back pressure, syphonage and air movements in drainage systems, the velocity of flow in drains etc. Then apart from technical education the apprentice should learn to be an independent business man and a salesman. Sanitary Engineer devotes considerable editorial space to articles showing how to conduct the plumbing business on a thoroughly efficient basis, and to giving pointers designed to assist the sanitary engineer from the standpoint of selling. These articles might well be followed closely and applied to the business of the reader. Many other interesting points in connection with the education of plumbing apprentices, appear in this issue,

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

Article No. 34 of the Series

(Continued from last issue)

(Continued from last issue.)

It is the general custom to place a disconnecting trap just below each sanitary fixture so as to prevent the escape of sewer gas through the fixture into the dwelling, but under no circumstances should a trap be inserted in any branch drain which connects to any soil pipe or other ventilating stick. In the majority of cases drain blockages are due to various articles being fastened in the trap, so whenever possible, the writer strongly advises the traps not being installed except at the junction of the main drain and sewer and the plumbers metal trap under each fixture for eliminating the nuisance of sewer gases escaping into the houses, but special care must be taken that all traps must be separately ventilated by running a branch vent into the main vent or soil pipe at the top of the outer bend of the trap; this prevents syphoning of the traps by the rushing of the water down the pipe from the discharge of a higher sanitary fixture and also provides access for any foul air accumulated in any part of the soil pipe.

All water pressure service pipes should be of iron either cast or wrought. With screw joint connections lead is sometimes used but on account of its softness is very liable to be punctured and ticked out of shape, but for awkward positions and to minimize sharp bends in plumbing, it is always better to install lead pipes in short lengths. The water service, from a sanitary standpoint, should not connect direct with the water main, but all sanitary fixtures should be served by a proper independent water cistern constructed in the roof of the building with branches connecting each sanitary fixture. Water closets should have at least a 3 gallon flush with 1¼ to 1½ pipe leading from the cistern to the fixtures and it is always advisable to have all parts of the plumbing fixtures and pipes exposed so that they may be readily inspected should any part be put out of working order.

All rooms with water closets should be ventilated by constructing a window opening to the outside air, having an area of at least one-fourth or one-fifth the floor area. No tank overflow should connect with any soil pipe, but should

discharge into a trapped sink the end of the discharge pipe being at least 3 inches above the water level of same.

The roof down spouts or leaders should never be connected to the foul water drains direct and if same do not connect to some underground rainwater storage tank, the branch drain from same leading to the sewer should be well trapped and under no circumstances should same be utilized for ventilation shafts for the drains. After the drainage arrangements of houses have been installed a thorough inspection of all the fittings and pipes should be carried out both internally and externally, commencing from the basement and completing each floor until the roof is reached.

All fixtures and connecting plumbing pipes should be carefully examined, special attention being given to the method of trapping the fixtures inside the house, also the method of joining the various connections and the quality of metal used for the waste and supply pipes.

The closed basin should be well examined and the water flush should also be tested and the air pipe from the top of the trap must be looked for. The connection between the trap of the water closet and the soil pipe should be very carefully examined as this is one of the most difficult joints to make secure and watertight.

The inspector must be careful to notice whether the supply pipe is properly cut off from direct communication with the house cistern should one exist, as will be the case if the water supply is not a constant one or if the house is dependent upon a private well for its supply.

The bath waste pipe should be properly trapped under the bath. The overflow pipes from the various cisterns should be noted and traced and either discharged into the open air or into a trapped sink as previously explained.

All the cisterns inside the house, either for drinking water or service storage, should be examined and their overflows properly traced and feed pipes valves examined, and both underground rain water tanks and cesspools, should be noticed for cleanliness and if they are constructed so as to be watertight and in the absence of a public

water supply, their position with regard to the well must be considered. It is impossible for any inspector however competent to positively assert that the drainage of a house is satisfactory from a mere surface inspection and the only method of certifying that the drainage is properly aired and water-tight, is explained below and as same involves but little time or trouble it is advisable to make it an invariable practice, however perfectly the work may seem to have been carried out.

MONARCH RANGES

Among the new seasonable stove catalogues recently received is that of The Enterprise Foundry Company, Ltd., of Sackville, N. B., describing their Monarch line of ranges. A number of illustrations specifying the various features of the Enterprise Monarch, are noticeably attractive. Complete cuts of this line of kitchen ranges, together with details as to size, weight, and other dimensions are also included in the catalogue.

CHINOOK FURNACES.

"Facts about Chinook furnaces" is the title of a new folder issued by the Swift Current Furnace Company, of Swift Current, Sask. Chinook furnaces are of steel construction, and made in two distinct styles, pipe and pipeless. Other features pointed out by the manufacturers are the brick fire-pot, the flat rocking grates, and the combustion chamber baffle plate. Gas tight, smokeless, dustless, and made in Canada, are further claims made for the Chinook in this pamphlet.

HOUSEHOLD AND BATH FIXTURES.

A new catalogue illustrating the Newell line of household and bath-room fixtures, has now been issued by the Newell Manufacturing Co., Ltd., of Prescott, Ont. This firm has specialized in the production of solid brass rods, extension curtain rods, poles, pole brackets and pole ends, brass hooks, combination double rods, and also an assortment of nickel-plated bath room fixtures. The catalog gives many illustrations of these lines, describing the special features of the Newell hand-buffed products.

Enlarge Your



Start the Day Right and it Won't go Wrong

Start each day with a cleansing and refreshing bath and you will start in with renewed, vigorous vitality that will make short work of business problems.

A Bath a Day Keeps You Fit Every Way

See that your home is equipped so that every member of the household can have their "bath a day" at their convenience—and without inconveniencing anyone else. See that you have an abundant supply of hot water at your command at all times.

And use it; it will keep you fit for work and play; for the office and the golf club.

*Let us make a free inspection
of your bathroom equipment.*

(Your Name Here.)

Phone No.

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The National Trade Extension Bureau Service

It's the only way to
business. If you
reaching prospects
the business back
Advertising in your
will help to boost

Two advertisements are
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We suggest that advertise
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Business Circle

and get increased
slow new methods of
testing them will bring

newspapers for instance,
build new business.

that tend to bring bathroom
in a favorable way.

these running continually in
a stronger desire to purchase
your getting a good share of

Sanitary Manu-
limited, will
furnishing
to meet
Write now.



A Clear Head

Nothing is more precious to him than fitness. He must be fit ALL the time.

Daily bathing keeps this man fit. He starts the day with a refreshing bath. It fits him better than anything else for a hard day at the office.

That which is good for the business man, earning \$10,000 a year, is also good for the office man, the factory worker, the store keeper and clerk—in fact everyone with ambition to get to the top of the business ladder.

A modern bathroom makes bathing a pleasure as well as a source of health. Is your bathroom modern?

We can serve you to your advantage.

Phone, write or call.

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The National Trade Extension Bureau Service

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Education of Plumbing Apprentice

What Apprentices Should Learn and How to Learn It—Study Trade Papers—Money Not the Highest Motive—Efficient Plumbing the Most Important Part of House.

Address by W. C. Groeniger, President American Society of Sanitary Engineering

IN our present day—with skyscrapers, large apartments and beautiful suburban cities—the man who installs water and drainage systems must really be an engineer. Plumbing has developed into the newer profession of Domestic Sanitary Engineering. Plumbing is a science and requires education, either in college or in the university of experience and hard knocks. A good plumber makes a city more healthy; he spoils a great deal of business for the doctor. His motto is: "Prevention rather than cure."

What You Should Learn.

In some of our public libraries there are as many as fifty different books on plumbing. If you have had the benefits of a high school education you should know something of physics and chemistry. Learn all you can about metals and the effects which water has upon them. Study mechanical and architectural drawing, for later you will have to work with blue prints all the time. Learn how to make an isometric view of an elevation showing a complete system of plumbing and drainage, giving the correct sizes. Learn the principles of back pressure—syphonage and air movements in drainage systems—learn the velocity of flow in drains—the formulas for diameters, head, quantity, and velocity. Learn the difference between volume and pressure.

In addition to all these things, you must learn to be an independent business man and a salesman. No matter if you elect to become a journeyman or a master plumber you should also learn salesmanship. By all means learn Courtesy and spell it with a capital C. Courtesy costs nothing and is the greatest little dividend and character producer in business, or professional life. Cultivate courtesy and be rewarded.

Do not ask the other fellow to do something that you yourself would and could not do, if you were in the other fellow's position. Try and put yourself in his position and you will avoid many mistakes.

"Read Your Trade Papers."

Learn to do your work well and profit by your mistakes. Learn to love the business of plumbing and to protect and defend it from the professional jester. Read the trade paper from cover to cover.

Money Should Not be the Highest Motive

There should be a higher motive than that of purely financial returns. Do

not accept remuneration for services unless you have given value received. Learn to co-ordinate your hands and your mind, and you will not only become a skilled artisan but will be a credit to your chosen art and contribute something to the welfare of your fellow man. Remember that America leads the world in that part of Sanitary Science relating to Sanitary Plumbing.

The Relationship Between Sanitation,

Hygiene and Plumbing.

Let us define sanitation, hygiene and plumbing and see if there is any relationship.

Sanitation is the art of practical application of the laws of hygiene to individual environments. Hygiene is the science of health maintenance. Plumbing is the art of installing in buildings, the pipes, fixtures and other apparatus for introducing the water supply and removing liquid and water-carried wastes. It must be installed in accordance with scientific principles and natural laws.

The disposal of liquid and solid waste matter is of great importance. This fact necessarily stands in relation to one of the most definite laws of hygiene which has yet been enunciated, "that all life is checked by the accumulation of its own products." It is so important that failures in adjustment may be followed by the extreme penalty of death.

The value and relationship of Plumbing to Sanitary Science is important because it removes human wastes from the immediate neighborhood of buildings. Plumbing also furnishes the opportunity for the liberal consumption and use of pure wholesome water for drinking, bathing, culinary and other domestic purposes. It represents an art upon which all civilization depends, and must be installed in accordance with scientific principles and natural laws.

Efficient Plumbing the Most Important

Part of a House.

There is nothing in a building that adds more to the comfort and convenience of the occupant than does a simple, efficient and economical system of plumbing. Did you ever attempt to realize what would happen to your city, if all your buildings were deprived of a plumbing system? The thought of deprivation is terrible when you think about the insanitary condition that would follow and the nuisances that would result, also the increased number of breeding places for flies, mosquitoes,

rats and other carriers of communicable, contagious and infectious diseases.

The modern home, factory, school, theatre, office building, hospital, hotel

and public institution of to-day, would not and cannot be successfully operated without a system of plumbing and drainage. The removal of infectious material from buildings is of value to public health. The mental and physical health of the occupants of a home is dependent in a great measure upon the sanitary conveniences. They are essential to the cleanliness of both the person and the apparel. The cleanliness of the body is simplified by the bath tub and shower bath. The cleanliness of the body is simplified by the laundry trays. The cleanliness of the hands, by which many diseases are transmitted to the mouth, is simplified by the lavatory. The sanitary condition of the kitchen and the cleanliness of the cooking utensils and food is in a great measure dependent upon the kitchen sink.

The sanitary drinking fountain has eliminated the danger inherent in the use of the common drinking cup, and the sanitary water closet is the safest method of removing human excrement and urine, which are the greatest hazards to man. This modern convenience has eliminated thousands of foul, germ-producing privy vaults, the chief breeding place of that disease-carrying pest and menace, the common house fly. The elimination of the privy vault has also removed one of the homes of the rat, another pest which is a very expensive boarder and a disease carrier.

Plumbing Increases the Value of a Building.

The intelligent real estate dealer is aware that a system of plumbing increases the value of the building far beyond the actual cost of the plumbing system. The hotel manager is able to charge from fifty cents to a dollar a day more for a room with sanitary conveniences. Running water in hotels is now considered a necessary adjunct by the traveling public. The plumbing system in a hotel not only adds to the comfort, convenience and health of the patrons, but is a source of revenue, which brings large returns for the owner.

The housewife of this country owes a debt of gratitude to the plumbing business because of the progress and measures adopted to lighten the labor of

(Continued on Page 34)

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Halifax, N. S.—McKay & Bremner, plumbers, have been succeeded by Roy F. McKay.

WOODEN PIPE LINE STILL IN USE

St. John, N. B.—The Mayor, commissioners, city engineer and superintendent of water and sewerage were taken by Commissioner Jones on a tour of inspection of the water main serving the city between Phinney's hill and Little River, a distance of about one and one-half miles.

The party went over the line on foot and examined very minutely the pipe which had been exposed to view in five or six places by city workmen. The mayor and commissioners were well pleased with the inspection and everything was found to be satisfactory, with the exception of slight evidence of "weeping." This pipe is a thirty-three inch wood stave pipe and was laid in 1907. The life of the pipe is now nearly up and it cannot be expected to function perfectly for more than four or five years longer.

ATTENDED WATER-

WORKS CONVENTION

St. Thomas, Ont.—Albert Roberts, chairman of the St. Thomas Water Commission; ex-Mayor George Geddes, commissioner; City Treasurer S. O. Perry, Col. A. F. McLachlin, city analyst, and Alonzo Bowlby, foreman of the city waterworks department, have returned from attending the annual International Waterworks Convention at Cleveland.

CONTRACTS AWARDED

Newmarket, Ont.—The Town Council accepted the tender of the Standard Sewer Co. of Toronto to lay sewers at a cost of about \$32,000.

WATERWORKS BY-LAW CARRIES

Sarnia, Ont.—With a majority of 113 the by-law asking for \$95,000 for waterworks extensions, voted on at Sarnia, carried.

WELLAND PLUMBERS AGREE

ON 80 CENTS TILL AUGUST

Welland—The plumbers in the city have agreed to work till August for 80 cents an hour.

"COMBINE" REPORT SHELVED

Toronto—Pending at least the outcome of litigation in respect to the investigation into the alleged grocers' combine, the Attorney-General's Department will take no action on the report which was made by A. W. Roebuck in regard to the alleged plumbers' combine.

Mr. Roebuck, who conducted the investigation, declined to indicate whether his investigations convinced him that there was or was not a plumbers' combine in existence. Neither was the Attorney-General prepared to divulge anything of the contents of the report.

It is believed that the report sets forth certain facts without making any definite recommendation as to official action. The report has been with the Attorney-General's Department now for three months.

WATER COST \$24.80 YEARLY

Long Branch, Ont.—"The annual cost of water for a house containing five persons, consuming 60 gallons per head daily will be about \$10.80, to which must be added \$14 (capital and local improvement charges), making a total of about \$24.80 per annum per house. The cost of a scheme for present needs would be \$155,932," is a summary of the engineer's report on a waterworks scheme for Area 1.

CANNOT STOP POLLUTION OF BAY

Hamilton, Ont.—That no action could be taken at the present time to prevent the pollution of the waters of Hamilton bay was the advice given by the board of control regarding a resolution from the chamber of commerce about impure drainage into the harbor.

City Engineer Gray advised that a part of the pollution was caused by the emptying of untreated sewage into the bay from the city sewers.

The engineer outlined the work done by the department and spoke of the plans for an intercepting sewer from Queen street on the west to Gage avenue. The purpose of this is to intercept the sewage from Queen street west of Stuart street, and all sewers to the north and south of Burlington street, which discharge untreated effluent into the bay. After reaching the interceptor the sewage will be pumped to a disposal place to be built on the recently acquired Stipe property. When these and subsidiary works are completed the engineer states that no untreated sewage will reach the bay.

PLUMBER SUFFOCATED

Montreal—Suffocated by gas fumes escaping in a cellar where he was working, Domina Charbonneau, 45 years of age, a plumber, employed by Paquette & Fortin, plumbers, of 70 Cathedral street, died at the Montreal General hospital a few hours later.

PLUMBERS' STRIKE SETTLED

Fort William, Ont.—The master plumbers and journeymen plumbers have settled their differences and the men have gone back to work at 90 cents per hour.

This was settled at a general meeting at which J. J. Culliton presided and spoke in favor of settling the dispute. He claimed that it was no use for Fort William to pay a lower scale of wage than was paid in other near-by cities, as it would merely mean the drifting of the best mechanics from Fort William elsewhere.

The men were there in full force, and, while there were only eight of the master plumbers of Fort William there, the recommendation adopted by them will go. Only Fort William plumbers were represented, but it is supposed that Port Arthur plumbers will follow suit.

ADOPT METER SYSTEM

Woburn, Ont.—Utilities Commission will adopt the meter system in connection with the Birch Cliff waterworks system. A charge of 25 cents per 1,000 gallons and a sum of \$32 for installing pipe to the street line has been arranged.

COMPEL USE OF

COVERED GARBAGE PAILS

St. Catharines, Ont.—At a meeting of the Board of Health, Dr. Currey, M.O.H., presented his report as follows:

Garbage Receptacles.—As advised by your Board a notice was published in the St. Catharines Standard notifying householders that covered, metal receptacles must be used after June 1st. With the co-operation of the City Engineer's department this by-law will be strictly enforced this year, and I have advised the Sanitary Inspector to take the proper steps in this regard.

WATERWORKS ENGINEERS

Niagara Falls, Ont.—The Canadian section of the American Waterworks Association met in the Clifton Hotel. Seventy-five Canadian delegates were present. An address was given by Dr. R. C. Snowden, chemical engineer. The delegates visited the filtration plant at Niagara Falls, N.Y. The delegates left by special train to be present at the convention of the parent body, which lasted a week in Cleveland, O.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PRICE recessions continue to constitute the principal market changes noted on steam-fitting and plumbing supplies. A reduction in prices on radiators from 5 to 10 per cent, through a revision in discounts, is of particular interest as this is the second change recorded in radiator quotations within recent weeks. Solder prices again register further decreases, and lower prices are shown on blue annealed sheets. Revised lower quotations are also recorded on both bland and hoop steel.

A gradual revival in the market tone is shown on other products. Eavestrough, conductor pipe, and corrugated sheet sales are now recording a

seasonable movement, while the volume of trade in pipe and pipe fittings is generally considered fair. A better movement is noted in enamelled wares, and a corresponding slight improvement is shown in orders for closet outfits and fixtures. Range boiler quotations still remain at the lower list, and the expected price readjustment has not yet materialized. No marked development is noted in compression work, with prices remaining unchanged. Boiler tube trade is dull at present, while the revised quotations are holding on copper and brass. Business in the waste material markets is almost at a standstill, and the dull period in ingot metals has shown little variation.

MONTREAL, July 8.—Markets on plumbing and steamfitting supplies are featured with a reduction in radiators and boilers. Through a revision in discounts, these are lowered from 5 to 10 per cent. Enamelled ware and closets will cost less, and while a definite lower price is not given on lines of enamelled ware, closets are now selling 10 per cent lower. Soil pipe discounts are unchanged and range boilers are still selling at the lower list given a few weeks ago. Sheets, bar iron and steel show unchanged quotations, but the market is reported easier, especially on the latter. Eavestrough, conductor pipe and corrugated sheets are selling well at unchanged prices. A few revisions are made in compression goods while pipe and fittings show no change. Ingot metals show a slight improvement over previous weeks.

The usual quiet period of the warmer months of July and August is now noticeable, but a brighter outlook for Fall trade is furnished in different lines by more inquiries now coming to hand.

MONTREAL

Radiator and Boiler Prices Lowered

Montreal—

Radiation and boilers are reduced in price, effective from July 5th. The hot water upright radiators are now quoted less 56 per cent., steam less 57 per cent. Former discounts being 53 and 54 per cent respectively. Wall radiators are now less 53 per cent, a reduction of 6 per cent. All boilers, both in standard and Ontario Government trimmings are lowered from 5 to 10 per cent.

These reductions add assistance to lower building costs from lines relative to the hardware trade, and are in line with other heavier commodities of iron and steel which are now reported easier on the markets.

Manufacturers state they have considered the recent slight decrease in raw materials and have also anticipated the future in lowering their products to the present level. Classed as very heavy goods, transportation costs will have to be lowered before a further reduction to any great extent can be made. Following are the new prices and discounts:—

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot. 45 in. to 38 in., \$1; 32 in., \$1.10; 30 in.,

\$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 56 per cent for hot water and 57 per cent. for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 53 per cent.

Boilers—Round hot water boiler, low base only (high base discontinued) sizes from 0 to 10, 60 per cent off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings 5 per cent.

Square or sectional water boilers 19-in to 36-in., 10 per cent off list.

Square or sectional steam boilers, 19 in. to 36 in., 10 per cent. Ontario Government trimmings, 5 per cent.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Sorting Demand For Fittings

Montreal

The demand for pipe fittings continues more or less irregular from week to week, and of a general sorting movement. Prices on all kinds are unchanged as follows:—

Fittings—

Cast iron fittings..	..20	p.c.
Bushings, cast....	..30	p.c.
Bushings, malleable..	..30	p.c.
Flanges....	..27½	p.c.
Plugs....	..22½	p.c.
Flange Unions....	..20	p.c.
Malleable Unions....	..40	p.c.
Dart Unions, black..	..29	p.c.
" galvanized..	..8	p.c.
Nipples ¼ to 4 in. close and short....	..40	p.c.
" long .....	..50	p.c.
" 4½ to 8 in close and short....	..30	p.c.
" long.....	..40	p.c.
Couplings 4 in and under.....	..20	p.c.
" 4½ in and larger	Net list	

Pound Goods—

	Blk.	Galv.
Class B.....	0 20	0 28
Class C.....	0 13	0 20
Add 10 per cent.		

No Change in Wrought Iron

Montreal—

Wrought iron and steel pipe are unchanged under list No. 51. Piping has remained fairly steady since the issuing of the latest list on April 25th last, while previous to this the downward trend was characterized by the issuing of new lists at almost regular intervals each with lower prices. Owing to decreased production, in accordance with a quiet demand, the condition of piping is now said to be steady.

Light Sales of Boiler Tubes

Montreal—

Boiler tube sales are very light in line with other heavy commodities of iron and steel. Buyers for local warehouses state that present stocks are lower than is usually kept at this time, and only ample for the small repair work that is being carried out. Following are unchanged quotations;

MUELLER

Ground Key Cocks and Compression Stop, Supply and Drain Cocks

The Cocks illustrated on this page—A-1120, A-1185, A-1128, A-1251, A-1260 and A-1188 (reading down from left to right), represent a few of the many **MUELLER** patterns—each designed to fill a special need to perfection.

MUELLER Plumbing Brass Goods are made from Muellerite—a metal that is 85% pure copper. Muellerite resists corrosion better—can be handled with greater mechanical precision—takes a finer finish and a heavier nickel plating than common brass, which is less than 60% copper.

Once you begin to use **MUELLER** Plumbing Brass Goods, you will quickly recognize their superiority—in the ease with which they can be installed, and in the dependable service they invariably give. Every **MUELLER** Cock is tested to withstand 200 pounds hydraulic pressure without leaking.

Write for detailed description and prices. Mail orders given immediate attention.

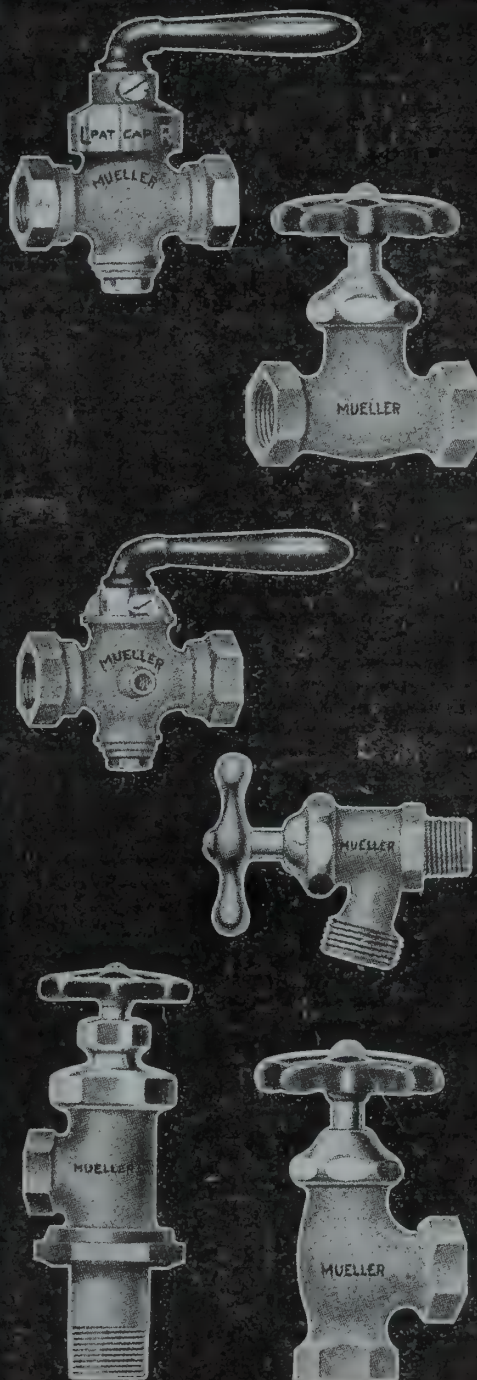
H. Mueller Mfg., Co., Ltd.
Sarnia, Ontario

**Water, Plumbing and Gas
Brass Goods and Tools.**

American Factory at Decatur, Ill.,
U. S. A.

Branches, New York, San Francisco

Mueller Metals Co., Port Huron, Mich.,
Makers of "Red Tip" Brass Rod; Brass and
Copper Tubing; Forgings and Castings in
Brass, Bronze and Aluminum; Die Castings
in White Metal and Aluminum; also Screw
Machined Products.



Boiler Tubes —	Seamless	Lapweld
1 inch.....	26.00	25.00
1¼ inch.....	27.25	26.00
1½ inch.....	26.25	27.00
1¾ inch.....	29.75	25.00
2 inch.....	29.25	22.00
2¼ inch.....	33.00	25.00
2½ inch.....	41.75	27.00
3 inch.....	49.25	35.00
3½ inch.....	63.50	40.00
4 inch.....	85.00	50.25

Range Boiler Prices Not Yet Settled

Montreal—

No further readjustment in range boilers quotations is announced and the following are prices quoted, although a few wholesalers are maintaining quotations slightly in advance. The 30 gallon boiler continues the popular selling size, the movement of the larger boilers being very slow.

Range Boilers—	Standard	Ex. heavy
30 gallon.....	8 75	11 25
35 gallon.....	11 25	.. ..
40 gallon.....	13 50	16 00
52 gallon.....	20 00	.. ..
66 gallon.....	28 00	.. ..
82 gallon.....	35 00	.. ..
100 gallon.....	45 00	.. ..
120 gallon.....	54 00	.. ..

Closet Prices Lowered 10 Per Cent.

Montreal—

Dealers are now quoting a discount of 10 per cent off former net prices on closets. Accompanied by practically all other lines of enamelled ware, the market has been very unsettled in the past two weeks, and the present price has been obtainable from some sources. Now, however, prices generally are brought to the lower levels. Sales are still limited, little, if any improvement being shown. Following are local quotations:—

Closet, standard outfit	32.00
Do., with post hinge seat.....	33.00
Do., white vitro, vitreous china or enamelled iron, with wash down bowl and oak or mahogany post hinge seat.....	35.00
Do., add for reversible trap bowl ..	1.25
Do., add for syphon jet bowl	7.00
Do., for ¾ in. valve on supply pipe.....	1.50
Do., deduct for supply pipe.....	0.80
Do., deduct for floor flange.....	0.60
Do., wash-down bowl less spud.....	11.50
Do., reversible trap bowl, less spud ..	12.75
Do., syphon jet bowl, less spud.....	19.00
Do., "Richilieu" bowl.....	10.50
Do., extra for spud.....	0.60
Do., oak, or oak-vitro tank, with fittings, less seat.....	17.50
Do., wood strip seat and cover.....	3.75
Do., post hinge seat and cover.....	4.75
Do., add for bar hinge	0.25
Do., white vitro, vitreous china, or enamelled iron tank, with fittings flush elbow and supplies less seat.....	19.00
Less 10 per cent.	

No Change In Enamelled Ware

Montreal—

Little, if any, change has taken place in the local condition of enamelled ware, the market remaining unsettled. The list prices with discounts are now shown below, as wholesalers and jobbers who had previously used net quotations, are now quoting the discounts. While 20

and 10 per cent is quoted, lower prices are obtainable from different sources, the result of recent price-cutting. Following are list prices less discounts:—

Sinks, roll rim, 18 x 30 in.....	23.00
Sinks, flat rim— 1 only 2 only 3 only	
16 x 24.....	\$ 7.50 \$ 7.40 \$ 7.30
18 x 30.....	8.70 8.60 8.50
20 x 30.....	9.90 9.80 9.70
Bath tubs, roll rim, 4, 4½, 5 feet	
24 to 30 in. wide.....	51.40
Bath tubs, 5½ feet.....	57.10
Lavatories—	
17x19" Apron F139 or P4045	15.30
18x24" Apron F154 or P3845 or P3847.....	23.60
18x21" Apron F169 or P4205.....	17.60
17x19" Roll Rim, F241 or P3435.....	12.60
Less 20/10 per cent.	

Corrugated Still Selling Well

Montreal—

Sales of corrugated sheets have been up to a fair standard for the past few weeks, and dealers report business holding well at present. While the farmers are now busy, the last months have allowed them to make any necessary repairs and to undertake new building, this undoubtedly stimulating the movement of sheets. The list prices and discounts remain unchanged as follows:—

Corrugated Sheets—	Per 100 sq. ft.
No. 28 gauge.....	8.50
No. 26 gauge.....	9.25
No. 24 gauge.....	15.00
No. 22 gauge.....	16.00
No. 20 gauge.....	18.00
No. 18 gauge.....	24.00
Less 7½ per cent.	

Lighter than 24 gauge and wider than 27 inches, 75 cents a square extra.

A Dull Scrap Market Continues

Montreal—

Dealers in scrap metals report no relief from the prolonged dull period. Little interest is shown, consumers only buying for immediate needs which are very small at present. One large dealer, however, is anticipating greater volumes of sales in the future, when the usual slump of July and August is over. Following are the local nominal quotations:—

Waste Materials—	
Automobile tires.....	0.75
Yellow brass.....	0.05
Red brass.....	0.03½
Light brass.....	0.04
Scrap zinc.....	0.03½
Lead, heavy.....	0.04
Lead, tea.....	0.02
Light copper.....	0.07¾
Heavy copper.....	0.10½
Wrought iron, R. Rd. No. 1 per gr. ton.....	10 50
Malleable scrap (ton).....	10.50
Pipe scrap (ton).....	7 00
Heavy melting steel.....	6.50
No. 2 busheling.....	4.00
Boiler plate.....	0.08
Boiler plate.....	0.10
No. 1 machinery cast.....	22.50

Better Outlook For Sheets

Montreal—

Following the recent revision in sheets when practically all quotations were brought to a little lower level, a few more inquiries are now coming to hand, which lends a brighter outlook for future business. The Fall demand for galvanized iron and tin plates, when furnace work commences, and Canada plate for the making of stove pipes, is said to have caused these inquiries to

be made. At present, however, all kinds of sheets and plates are moving slow. The situation is little changed with a more or less unsettled market, and reductions made from different sources to obtain orders. Local quotations are the following:—

Black Sheets—

10 gauge.....	5.00 to 6.00
12 gauge.....	5.05 to 6.05
14 gauge.....	5.35 to 6.35
16 gauge.....	5.45 to 6.45
18-20 gauge.....	5.80 to 6.80
22-24 gauge.....	5.85 to 6.85
26 gauge.....	6.00 to 7.00
28 gauge.....	6.10 to 7.10
Sheets 36 in. wide, 20 cents per 100 lbs. extra.	

Galvanized Sheets—

U. S. Standard	
10¾ cz.....	8.00 to 9.00
28 gauge.....	7.50 to 8.50
26 gauge.....	7.25 to 8.25
22-24 gauge.....	7.00 to 8.00
20 gauge.....	6.75 to 7.75
18 gauge.....	6.75 to 7.75
16 gauge.....	6.75 to 7.75
14 gauge.....	6.75 to 7.75
12 gauge.....	6.75 to 7.75
10 gauge.....	6.75 to 7.75

English Standard—

	Queen's Head	Flour-de-lis
28 gauge.....	10.00	9.25
26 gauge.....	9.75	9.00
24 gauge.....	9.15	8.60
22 gauge.....	8.80	8.15
18-20 gauge.....	8.10	8.00

NOTE—These prices are for full bundles an extra charge of 25 to 35¢ per 100 pounds is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

Bright Tin Plates—

20x28 X 100 lb. basis.....	18.00 box
20x28 IC 122s.....	18.50
20x28 IX 122s.....	20.50
20x28 IXX 56s.....	11.75
20x28 IXX 56s.....	12.50

Terne Plates—

20x28 IC 112s.....	17.50 box
--------------------	-----------

Canada Plates—

Dull	
18x24 X 52s.....	7 25 box
18x24 X 60s.....	7.35
18x24 X 75s.....	7.45

Good Demand For Eave-trough

Montreal—

A good demand continues for eave-trough, conductor pipe, etc. Low dealer stocks are undoubtedly assisting the movement of these commodities at present, outside dealers being now well into the season when their customers required their buildings troughed, and are ordering to meet this demand, while in other years their supplies were already in hand. Warehouse stocks are ample to meet the increased activities with prices and discounts unchanged as follows:—

Eave-trough—	
O.G. Square Bead	
Per 100 ft.	Per 100 ft.
8 in.....	15.90
10 in.....	17.50
12 in.....	21.20
O.G. Round and Half Round—	
8 in.....	16.90
10 in.....	18.70
12 in.....	22.20
Discount 60 per cent. off list	

M
MADE
IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tapings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

Halifax—GEO. D. HATFIELD, Bedford Chambers
St. John, N.B.—H. G. ROGERS, 147 Prince William St.

Winnipeg—HARRY F. MOULDEN, Confederation Life Building
Vancouver, B.C.—CYRIL AMES, Wilton Block

Montreal and Toronto—From Head Office, Guelph, Ont.

Conductor Pipe— Per 100 ft.

2 in....	18.40
3 in....	22.30
4 in....	29.60
5 in....	40.00
6 in....	49.00
Discount 60 per cent. off list	

Conductor Elbows—

2 inch, list....	5.25
3 inch, list....	6.00
4 inch, list....	10.50
5 inch, list....	24.00
6 inch, list....	29.00
Less 55 per cent.	

Iron and Steel Prices Hold**Montreal—**

No change has been made in local prices of the different bar iron and steel, but the tendency is easier and a revision to lower quotations would not be surprising in the near future. Business in all lines is at present quiet, but a better outlook is furnished by receipts of more inquiries in the past two weeks. Stocks are lower than usual, buyers not yet disposed to place orders with the present market conditions prevailing. Following are the local quotations.

Common bar iron, 100 lbs.	3 70
Refined iron	5 20
Iron finish machinery steel	3 75
Mild Steel	3 70
Single reeled machinery steel	5 75
Band steel	3 70
Spring steel	5 00
Sleighshoe steel	3.70
Tire steel	3 90
Toe calk steel	4 60
Harrow tooth steel	3 85
Mining tooth steel, per lb.	0 23
Black Diamond tool and cast steel	
per lb.	0 23

NOTE—Regned iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles 50c. per 100 lbs. extra.

Flats, iron and steel, 5-16 and thinner, 50c per 100 lbs. extra.

Valve Discount Revised**Montreal—**

Discounts on standard radiator valves and Gate valves are increased, thus lowering the price on these two lines. Other lines are unchanged, but further price lowerings would not be surprising as the market is by no means settled. Sales in these lines are small at present but an improved activity is looked for in the near future. The following quotations prevail locally.

Compression work, standard	37 p.c.
Fuller work, standard	30 p.c.
Bath cocks, compression	29 p.c.
Basin cocks, Fuller No. 0	30 p.c.
Do., Nos. 1 and 2	30 p.c.
Flatway stop and waste cocks, standard	40 p.c.
Roundway stop and waste cocks, standard	34 p.c.
Brass steam cocks, standard	10 p.c.
Radiator valves, standard	30 p.c.
Do., removable disc	38 p.c.
Globe, angle and check valves, standard	5 p.c.
Gate or straightway	16-10 p.c.
Jenkins Globe	10-10 p.c.
Jenkins gate valves	10 p.c.
Emco Globe Valves	20 p.c.
Emco Check Valves	20 p.c.

Cotton Wastes Show No Change**Montreal—**

No further price change is made in the price of cotton wastes, since the reduction of two weeks ago. Other lines of cotton goods have been shown at reduced prices since the reduction in wastes, but dealers now expect a fairly steady market as the last reduction brought prices down in accordance with the present levels of raw material. Following are the current prices:

Cream, polishing 0 20

White

XXX	0 17
XX	0 16
X	0 15
XLGR	0 15
X Empire	0 14
X Press	0 13
6X Special	0 12

Colored

Fancy	0 14
Lion	0 12½
Popular	0 10
Keen	0 09

Wool Packing

Arrow	0 30
Axle	0 25
Anvil	0 20

Domhion Wipers**Wash and Sterilized**

White Cotton	0 22
Colored Cotton	0 16

Above lines subject to trade discount for quantity.

Soil Pipe Discounts Hold**Montreal—**

No change is made in the discounts on either soil pipe or fittings, and the demand for these is still below normal for this season. Following are the local quotations:

Soil Pipe— (Medium and Extra heavy)
2, 3 15 p.c.; 5 and 6-inch, 20 per cent.
8 inch, add 5 p.c. to list.

discount.

4-inch, 25 p.c. discount.

Fittings—

2 to 6 inch fittings, 40 per cent. discount.

8-inch, net.

Lead and Zinc Easier**Montreal—**

Although lead is now a little steadier, the recent fluctuations of this metal and the extreme low prices of spelter on the primary markets still cast a strong reflection on the finished products. While no price changes are made, the tendency is now easier than it has been for some time. Sales of all lines are not as brisk as in last month, but dealers expect a quiet period at present and state sales are up to expectations. Following are unchanged prices:

Lead pipe, per 100 lbs. 12 50

Lead waste, per 100 lbs. 13 50

NOTE.—Lead pipe is subject to a discount of 10 p.c.

Lead traps and bends 10 p.c. off

Lead wool, lb. 0 13½

Lead sheets, 2½ lbs. 0 11

Lead sheets, 3 to 3½ lbs, sq. ft., lb. 0 10¾

Do., 4 to 8 lbs., sq. ft. 0 10

Cut sheets ¼ c lb. extra and cut sheets to size ¾ c lb. extra

Solder, guaranteed, lb. 0 29½

Do., strictly, lb. 0 27½

Do., commercial, lb. 0 24½

Do., wiping, lb. 25¼

Do., wire, lb. 0 37½

Do., wiping, lb. 0 25¼

Zinc, sheets, casks 0 11½

Do., broken lots 0 12

Ingots Show Slight Improvement**Montreal—**

The tone of the ingot metal markets is slightly better than in the last two weeks, although this does not mean that any sustained improvement is in sight. Business remains quiet with no immediate signs of improvement.

TORONTO

TORONTO, July 8.—The focus of attention is now concentrated on the steel markets due to the announcement by the Bethlehem Steel Company of a lower range of prices on steel, which practically brings the official list down to levels that have gradually developed during recent weeks. Locally, some lower quotations are shown on blue annealed sheets, and prices on band and hoop steel are also slightly reduced. Further price revisions are anticipated on radiators, while solder quotations have again registered a decrease. No recessions in either prices or discounts are recorded on other basic products, but conditions are gradually reviving. Fair sales are now recorded on corrugated sheets, conductor pipe and eavestrough, with a slight improvement noted in closet outfit sales, and a better movement reported from some quarters in enamelled ware. Range boilers are still at the lower list, and current orders for pipe, and fittings are generally considered fair. There has been no marked development in compression work, and the revised prices are holding on copper and brass. Boiler tube trade is still dull, and a similar tone pervades the waste material markets. There is a little variation shown in the prevailing conditions on ingot metals, but the outlook for future business is slightly more hopeful.

Lower Quotations Shown On Annealed Sheets**Toronto.**

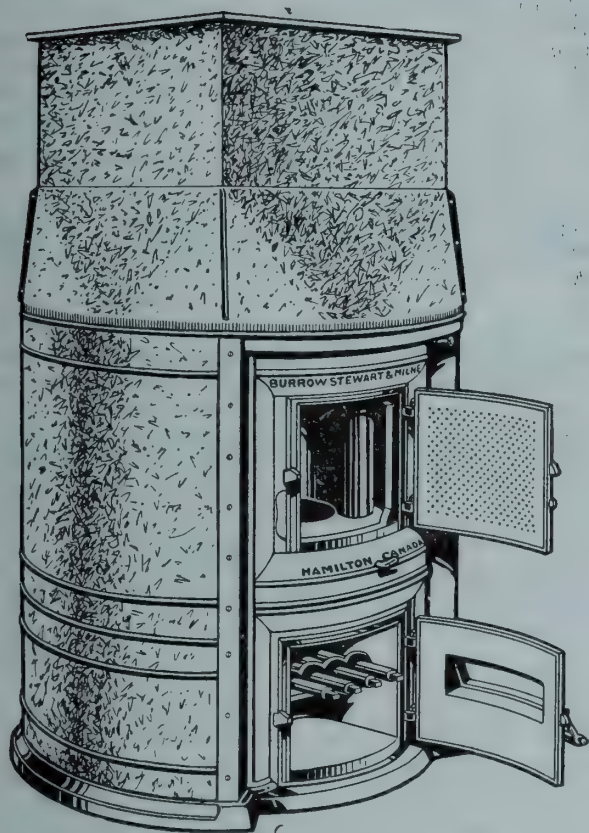
Reductions have been announced in quotations on blue annealed sheets. This price recession was not unexpected due to the prevailing anticipation of lower levels on the primary steel markets but local quotations on black and galvanized sheets are maintained at previous levels, with future price indications difficult to ascertain. Local dealers point out that

price reductions on the southern markets, have been gradually developing during recent weeks, and that such conditions have naturally been reflected in the local situation. With the anticipation of a general levelling of quotations by the Steel Corporation, future prices are expected to be more evenly maintained. Following is the average range of prices recorded on fairly large quantities, with some higher levels noted in certain quarters, especially for small or broken lots:

The Finest One-Register Furnace on the Market

Jewel Pipeless Furnace

A Successful Heating Appliance



The success is very natural, based, as it is, on exceptional merit, and following where the reliable Jewel Furnaces have already blazed the trail. The efficient Jewel Pipeless has the same splendid qualities that have made the name "Jewel" famous through the Dominion.

Real Serviceable Heat

is the primary requirement for homes, schools, churches and other buildings. The Jewel Pipeless gives real, serviceable heating. The furnace has two casings, the outer casing acts as a Cold Air duct, the inner casing as a Warm Air Flue.

The Duplex Register is directly over the furnace. The outer Section is for admitting Cold Air, and the Inner Section for delivery of Warm air.

The casings can be made suitable to any cellar.

A postal request will bring full information and prices.

Manufactured By

The Burrow, Stewart & Milne Co., Limited

Hamilton - Ontario

Plates—

10 gauge	\$ 4 75 to	\$ 5 05
12 gauge	4 80 to	5 10
14 gauge	4 85 to	5 15
16 gauge	4 95 to	5 25

Black Sheets—

14 gauge	5 10 to	5 60
16 gauge	5 20 to	5 70
18-20 gauge	5 30 to	5 80
22-24 gauge	5 35 to	5 85
26 gauge	5 40 to	5 90
28 gauge	5 50 to	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 36 in. wide.

GALVANIZED SHEETS—**Premier and Apollo**

10 3/4 oz.	7 90	8 40
U.S. 28	7 50	8 00
U.S. 26	7 20	7 70
22 and 24	7 05	7 55
18 and 20	6 90	7 40
16	6 75	7 30
12 and 14	6 60	7 20

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10 3/4 oz., and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Reductions Shown On Band and Hoop Steel Prices**Toronto.**

Quotations on steel and iron are receiving an unusual degree of attention due to the recent announcement by the Bethlehem Steel Company of a lower range of prices on steel. It is pointed out however, that this approximately gives official recognition to the reduced price levels which have gradually developed in this connection during recent weeks, and while the decreases announced are fairly substantial in some instances, yet the new list was practically already in general effect on the steel markets.

Local distributors of bar iron and steel report that current business consists of small orders only, and also state that the recent tendency on the part of certain southern steel mills to cut quotations has been naturally reflected in local price revisions and slight recessions on iron and steel products. Now that a general standardization of steel prices is again in order, the current levels are expected to be more evenly maintained. A small reduction is noted in quotations on band and hoop steel, and the following is the revised average list of local prices:

STEEL AND IRON

Mild Steel, 3-16 inch	\$ 4 10
Do., 1-4 in. and heavier	3 75
Bar iron, 3-16 in.	4 10
Do., 1-4 in. and heavier	3 75
Angle base	4 00
Horseshoe iron	4 10
Tire Steel	\$ 4 70
	5 95

Band Steel, 5-8 to 4 in.	4 25
Spring Steel	10 75
Crucible cast sheet steel..	30 00
Mining drill steel	23 00
Cast tool steel	20 00
Sleigh shoe steel	4 10
Norway iron	15 00
Toe caulk iron	5 40
Hoop steel	4 75

Slight Improvement In Closet Outfit Sales**Toronto.**

While sales in closet outfits and fixtures are still reported as below expectations in some quarters, yet a slight increase has been recorded in the volume of recent orders. This gradual tendency was described by one jobber as tending towards a more hopeful outlook although still leaving much to be desired in the way of current business. Prices generally remain unchanged at the following quotations:

Closet, standard outfit oak.....	\$28 50
Do., with post hinge seat.....	29 70
Do., white, vitro, pussyfoot, vitreous china or enamel-iron with wash-down bowl and oak or mahogany post hinge seat..	31 50
Do., add for reversible trap bowl	1 25
Do., add for syphon jet bowl....	7 00
Do., for 3/4 in. valve on supply pipe	1 50
Do., deduct for supply pipe.....	0 80
Do., deduct for floor flange....	0 60
Do., wash-down bowl less spud.	11 50
Do., reversible trap bowl less spud	12 75
Do., syphon jet-bowl less spud..	19 00
Do., "Richilieu" bowl	10 50
Do., oak, oak-vitro or pussyfoot tank with fittings, less seat...	16 50
Do., white, vitro, pussyfoot, vitreous china or enamelled iron tank with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover..	3 75
Do., post hinge seat and cover..	4 75
Do., add for bar hinge.....	0 40

Better Movement Noted In Enamelled Ware**Toronto.**

A slight gradual improvement has been noted in the current business on enamelled ware, and sales are generally reported of a steady nature. No change has been recorded in either prices or discounts, the following quotations still prevailing:

Enamelled Iron Baths, 3" roll rim	
4 ft. 6 in. 5 ft.	\$51 40
Do., 5 1/2 feet	57 10
All Steel Enamel Bath, 4, 4 1/2 or 5 ft., net	16 25
Do., do, 5 1/2 ft., net	17 50
Lavatories—	
17x10" Apron F139 or P40445...	15 30
18x24" Apron F154, P3845 or P3847	23 60
18x21" Apron F169 or P4205....	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim— 3 only 2 only 1 only	
16 x 24	\$7 30 \$7 40 \$7 50
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20-10 p.c. off these prices,	

Price Revisions Expected On Radiators**Toronto.**

Further price revisions are anticipated in current quotations on radiators. The actual range of these contemplated changes, however, is not yet available, local dealers stating that the new lists are not completed, although it was admitted that price revisions have been decided upon.

Prevailing quotations on heating boilers are also subject to lower levels, according to the views expressed in certain quarters of the trade. The probable extent of such looked for changes could not be ascertained, but it was pointed out that revisions in the discounts on water, steam and wall radiators became effective in June, and that in spite of such price reductions, the current volume of business was reported as below normal, and certainly not up to expectations. While there is a fair amount of building activity in progress, it is problematical whether any further price recessions will materially affect the degree of future construction, as the season is now advancing rapidly in this respect.

Fair Sales In Conductor Pipe and Eavestrough**Toronto.**

Eavestrough, conductor pipe and elbows continue to register a seasonable movement. Current sales are fair, and numerous small orders are reported. The season's turnover in these products is naturally dependent upon the degree of building, especially in the erection of houses and other small structures. Following are the prevailing unchanged quotations:

TROUGH (Eave)

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	\$ 15 90
10 in.	17 70
12 in.	21 20
Less 60 per cent.	
15 in.	28 80
18 in.	36 50

PIPE (Conductor)

Plain, round or corrugated)

	Per 100 ft. in 10 ft. lengths
2 in., in 10-ft. lengths, list.....	18 40
3 in., in 10-ft. lengths, list.....	22 30
4 in., in 10-ft. lengths, list.....	29 60
5 in., in 10-ft. lengths, list.....	40 00
6 in., in 10 ft. lengths, list.....	49 00
Less 60 per cent.	

CONDUCTOR ELBOWS

2 inch, list	5 25
3 inch, list.....	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

HEAT YOUR HOME RIGHT SAVE MONEY!

Get A FREE Estimate and Learn How Little This Fine Furnace Costs

You're wasting money trying to heat only two or three rooms with stoves. You'll use less coal and have the whole house very warm if you install a HECLA Pipeless Furnace. For the HECLA Pipeless has the famous steel-ribbed firepot that saves one ton of coal in six weeks. No heat is wasted, for there are every room in your house as a June day. We guarantee that absolutely—without reservation. And this modern heating system gives you a cool cellar without the old-fashioned open-living pipes.

Learn all about it about the HECLA Pipeless. Get a copy of "Selling Talks" from which you can learn the many advantages of this furnace. It will tell you the furnace is a class by itself. Study these features! FREE!

HECLA PIPELESS FURNACE

CLARE BROS. & CO. Limited
PRESTON, Ont.

Not Another Winter of Stoves

Get This Book At Once—Learn All About This Modern Heating System That Costs Less to Install and Less to Run

You'll save yourself a lot of money next winter if you install a "Hecla" Pipeless Furnace at once. It will cost you less to install than any other efficient heating system. And because of its patented steel-ribbed firepot, it will quickly pay for itself. For this exclusive feature, added to the pipeless principle of heating, cuts down fuel bills amazingly. In short, with coal at present prices, you can afford to do without a "Hecla" Pipeless—no furnace we guarantee absolutely to heat any home of any size with complete satisfaction.

HECLA PIPELESS FURNACE

CLARE BROS. & CO. Limited
PRESTON, Ont.

What Did You Pay For? Coal This Winter?

Here's a Furnace that Cuts Down Fuel Bills Surprisingly and COSTS LESS To Install.

Installed in a Day. Guaranteed to Heat Any Home to 15 Rooms!

HECLA PIPELESS FURNACE

CLARE BROS. & CO. Limited
PRESTON, Ont.

A BETTER FURNACE WHICH COSTS LESS

And Saves One-Third On Fuel Bills

The "Hecla" Pipeless Furnace enables a builder to save many valuable dollars on the cost of a house and yet give a heating system of guaranteed efficiency—no matter what size the place. It adds a valuable selling feature, for it not only heats the house properly but it does so on much less fuel than any other heating system.

Guaranteed Against Leaks of Gas or Dust!

The "Hecla" Pipeless Furnace is the only furnace in the world which has been tested and found to be absolutely safe. It has no gas or dust leaks, and it is guaranteed to be safe for the life of the furnace.

Send for Booklet and Estimate Free

You can find out more about the "Hecla" Pipeless Furnace by getting a copy of the "Selling Talks" booklet. It will tell you all about the furnace, its features, and its advantages. It will also give you a free estimate of the cost of installing the furnace in your home.

HECLA PIPELESS FURNACE

CLARE BROS. & CO. Limited
PRESTON, Ont.

The "Babe Ruth" Among Pipeless Furnaces

There are lots of baseball players who can maintain a pretty high batting average—but none of them get the crowds like "Babe" Ruth. BECAUSE—he outclasses them all!

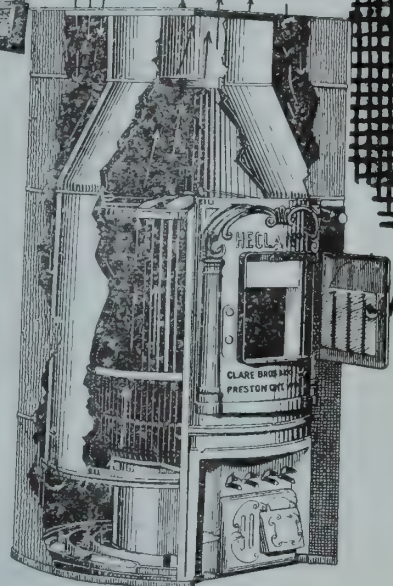
And it's the same in pipeless furnaces—the "Hecla" Pipeless has so many exclusive features of real merit that it stands in a class by itself!

Steel-Ribbed Firepot, Patented Fused Joints, Circular Waterpan—these three famous features would alone set the "Hecla" Pipeless ahead of competition.

But there are many other details which give the "Hecla" dealer convincing selling points—and satisfactory sales.

Get into the pipeless business—it opens up a new market. Old homes as well as new—small homes as well as large are your prospects. Each installation takes but a few hours—you make a quick, clean profit.

We've compiled a unique book of "Selling Talks" on the "Hecla Pipeless." It shows just how our most successful dealers go after business. It's yours for the asking. Write now, learn the "Hecla" proposition today. Be the "Babe Ruth" in your local furnace business.



CLARE BROS. & CO., Limited PRESTON

Winnipeg
Vancouver

HECLA PIPELESS FURNACE

No Marked Development In Compression Work

Toronto.

Conditions on general compression goods show a tendency towards gradual improvement. While the volume of sales recorded is not large however, the current movement is reported as steady, and the statement was made in one quarter that the present situation could be a whole lot worse. No marked developments are looked for in the future, as the recent revised quotations failed to uncover any noticeable proportion of fresh buyers. The following prices generally prevail:

Compression work, standard	37 p.c.
Fuller work, standard	30 p.c.
Bath cocks, compression	29 p.c.
Do., Fuller	25 p.c.
Flatway stop and waste cocks, standard	40 p.c.
Roundway stop and waste cocks, standard	34 p.c.
Brass steam cocks, standard	10 p.c.
Globe, angle and check valves, standard	5 p.c.
J. M. T.	20 p.c.
J. M. T. C.	25 p.c.
J. M. T. Gate Valves	15 p.c.
Gate or straightway	16 10 p.c.
Jenkins Globe	10 10 p.c.
Radiator valves, standard	30 p.c.
Do., removable disc	42 p.c.

Basin Cocks—

No. 1 and 1 Fuller pattern	30 p.c.
Quick opening, No. 3633	37 p.c.
Emco J. D. Valves	20 p.c.
Emco Check Valves	20 p.c.
Webber Gate Valves	20 p.c.

Range Boiler Quotations Still At Lower List

Toronto.

The lower list of quotations on range boilers still nominally prevails. The looked for readjustment in prices has so far failed to materialize, but a settlement between the manufacturers and various jobbing houses is reported as imminent. Conditions are unchanged, with only a slight improvement noted in the movement of range boilers, and this has been mainly confined to the 30 gallon size. Orders are therefore still being taken at the following prices:

RANGE BOILERS

	Standard	Ex-heavy
30 gallon	\$ 8 75	\$11 50
35 gallon	9 50	13 80
40 gallon	13 80	16 50
52 gallon	20 40	25 20
66 gallon	28 80	34 80
82 gallon	36 00	47 40
100 gallon	45 60	56 40
120 gallon	55 20	64 80
144 gallon	78 00	93 00

Orders For Pipe Fittings Considered Fair

Toronto.

Dealers now report a slight lull in the movement of pipe fittings, and while this condition is a reaction from the activity noted some few weeks ago, yet current sales are still reported fair. The situation was summed up by one jobber in the statement that while the volume of orders might not be up to the standard which earlier predictions had led them to expect, yet, considering trade conditions generally and the fact that merchants and consumers have adopted the policy of purchasing for immediate requirements only, the present proportion

of business was very gratifying under existing circumstances and certainly not to be despised. The present quiet tone was considered as temporary. The prevailing quotations follow:

PIPE FITTINGS

Cast iron fittings	20 p.c.
Plugs, cast iron	27½ p.c.
Do., solid	10 p.c.
Do., countersunk	net
Bushings	30 p.c.
Unions, 1-4 in. to 2-in.	40 p.c.
Do., 1-8 in., 2 1-2 to 4 in.	35 p.c.
Flanged Unions	20 p.c.
Dart Unions, blk., 1-4 to 2in.	29 p.c.
Do., ½ in., 2½ to 4in.	14 p.c.
Do., galvd., add to black	30 p.c.
Nipples, blk. and galvd., ½ to 4 inch, close and short	40 p.c.
Do., 4½ in. and larger	30 p.c.
Do., 4½ in. and larger	40 p.c.
Do., long, ½ in. to 4 in.	50 p.c.
Do., running thread	20 p.c.
Couplings, 4 in. and under	20 p.c.

MALLEABLE FITTINGS

	Black Galvanized
Class A	0 60 0 75
Class B	0 24 0 34
Class C	0 15 0 24

Solder Quotations Again Register Decrease

Toronto.

Solder prices have dropped again. The revised quotations are slightly lower, and follow the declining trend on the primary markets. Although weak in tone, prices on lead pipe and sheets are still maintained at previous levels. The decrease in solder shows an average price lowering of one cent per lb. on the quotations listed last week, but a range is noted in the extent of the decline on various grades. The new prices follow:

LEAD AND ZINC GOODS

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of	10 p.c.
Lead traps and bends	10 p.c.
Lead sheets, 4 to 6 lbs. sq. ft. in rolls, lb.	0 09½
Cut sheets, ½ c to ¾ c lb. extra and cut sheets to size 1 ct. lb. extra.	
Solder, wire, per lb.	0 32
Do., strictly, lb.	0 23
Do., commercial, lb.	0 21
Do., guaranteed, lb.	0 26
Do., wiping, lb.	0 20½
Zinc sheets, per lb.	0 13
Caulking lead	0 08 0 09

Revised Prices Hold On Copper and Brass

Toronto.

Current quotations on copper and brass remain at the lower range recently announced. The easier market tone recorded, is still evident, however, but reports from the American centres indicate that slight improvement is looked for due to the more satisfactory tone of the outside markets, consequent upon the improvement in the exchange situation and the settlement of the prolonged British coal strike. Whether these conditions will tend to offset the recent depression and serve to stimulate activity, is yet too early to ascertain. The reflection in local markets remains steady, with prices on copper and brass sheets,

rods and tubing, maintained at the following levels:

BRASS

Sheets, base, per lb.	\$ 0 27
Rods, base, per pound	0 27
Tubing, base, per lb.	0 34

COPPER

Rods, base, per pound	0 32
Soft sheets, plain, 16 oz. and heavier, lb.	0 32
Do., plain tinned 16-oz. and heavier, lb.	0 40
Do., polished and tinned 16-oz. and heavier, lb.	0 45
Tubing	0 37

Corrugated Sheet Sales Reported Steady

Toronto.

Current sales in corrugated sheets are now reported as seasonably steady. The movement continues fair, but activity recently recorded has slightly subsided. No change has, as yet, been announced in quotations on corrugated sheets, the following prices being well maintained:

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	13 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 7½ p. c.	

Lighter than 24 gauge and wider than 27 inch 75c. a square extra.

Soil Pipe Prices Hold

Toronto.

A seasonable volume of sales has been recorded on soil pipe and fittings. The current movement is reported as fair, and while orders are chiefly small, they are more numerous than formerly. Prices are unchanged at present, having been maintained at the following quotations:

SOIL PIPE

2 and 3 in., 10 p.c.
4 inch, 20 p.c.
5 and 6 inch, 15 p.c.
8 inch, add 5 p.c.

FITTINGS

2 to 6 inch fittings, 40 p.c.
8 inch fittings, plus 5 p.c.

Boiler Tube Prices Hold

Toronto.

Dullness is still the outstanding element in the current boiler tube market, and business seems to have adjourned for the present. The quiet period which has developed, offers no incentive for local price reductions, according to the opinion expressed by local merchants, but price changes are stated to depend largely on the Pittsburgh market, and local quotations on boiler tubes remain unchanged as follows:

BOILER TUBES

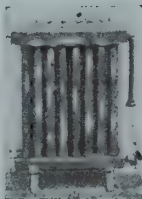
	Seamless	Lapweld
1 inch	\$26 00	\$
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch	29 25	22 00
2¼ inch	33 00	25 00
2½ inch	41 75	27 00
3 inch	49 25	35 00
3½ inch	63 50	40 00
4 inch	85 00	50 25

Victory Radiators

SAVE ON

**Coal, Cost of Installation, Shipping and Handling,
Weight and Fittings**

They are superior in design and arrangement; artistic in appearance. Steel tubing is thinner and more effective in radiation so that advantages in air circulation are gained. There are two flat, hollow castings, forming a top and bottom part, with tubes in-



serted—double tubes, one within the other. The water circulates between the two tubes and through the headers. They require less water to be heated, permitting a smaller furnace, and consequent fuel saving.

Write to-day, asking for literature which will make clear the large number of advantages in Victory Radiators.

Montreal General Tool Company, Limited

2419 NOTRE DAME ST., EAST, MONTREAL



True Economy Stack Heater

The Stack Gas Water Heater will heat water in one minute.

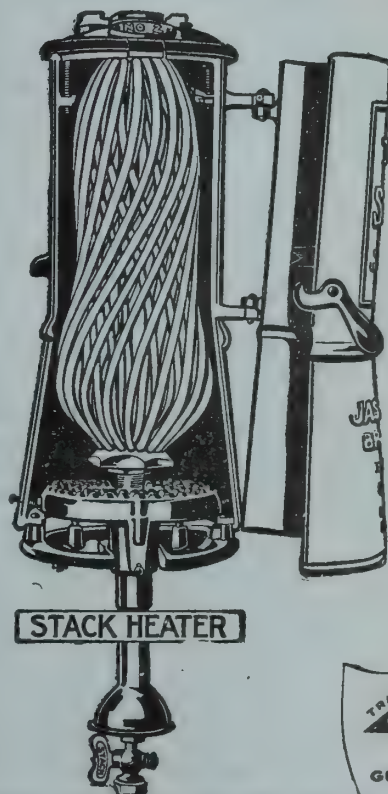
The almost perpendicular copper pipes in the Stack Heater offer no hindrance to the natural tendency of water to rise when heated.

Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co. Limited
93-97 Adelaide Street West, Toronto, Ontario



Steady Volume of Pipe Sales

Toronto.

Little new business has been recorded in pipe this week. Sales are reported of a steady nature, with no out-standing development. There have been no price changes announced at present, List No. 51 still prevailing. The outlook for an improved volume of pipe sales is reported as interdependent upon other trade activities, and no expression could be obtained as to whether lower quotations would possibly serve to increase future business.

Dull Tone Pervades Waste Material Markets

Toronto.

Scrap metal markets are still maintaining an attitude of depression, and despite recent price declines, very little buying is evident. The new lower quotations are generally holding, and the price changes have had no apparent influence on the market. The following list is an average of dealers' nominal buying prices, f.o.b. Toronto, for fairly large quantities:

WASTE MATERIALS

No. 2 bushelling	\$	\$11 00
Heavy melting steel, gross		
ton	11 00	12 00
R. Rd. wrought iron, No. 1,		
gr. ton	11 00	12 00

Scrap pipe, gr. ton	6 00	7 00
Stove plate, net ton.....	12 00	13 00
No. 1 machinery cast, net		
ton	17 00	18 00
Heavy, lead	3 75	4 25
Tea lead	2 25	2 50
Red brass		9 00
Yellow brass	6 00	7 00
Light brass	4 00	4 50
Heavy Copper	10 00	11 00
Scrap zinc	3 50	4 00
Old rubbers, boots and		
shoes	2 50	3 00
Lumberman's rubber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

Little Variation Shown In Ingot Metals

Toronto.

COPPER.—Local quotations on copper are maintained at 17½ cents. There is very little interest manifest at the present time, and no changes are reported in either the prevailing price, or the current market conditions.

TIN.—The weaker tone recently evident in the tin market, has now gradually strengthened, owing to the improved foreign situation generally. Local prices have developed a range, the lower level of 37 cents still being noted, as compared with a quotation of 38 cents from another source. Foreign markets are

reported as displaying renewed interest.

LEAD.—This metal is still dull locally and a waiting policy generally prevails. Prices show little inclination to change, however, the lower range of \$6.50 noted last week, being followed in some quarters by the slightly higher level of \$6.75.

SPELTER.—With a large increase in surplus stocks of spelter noted, prices are now being shaded a little in order, if possible, to keep stocks down. The recent reduction in local prices still holds the prevailing quotation now being \$7.00. This is a decline of 25 cents on the previous price level.

ANTIMONY.—The general dullness in all ingot metals is evident in this market also. Sales are reported as few and far between, but prices are unchanged from previous levels. The present local quotation remains from 8 to 10 cents.

ALUMINUM.—The aluminum market is practically stagnant at present, with prices remaining nominally unchanged. A marked improvement in those trades, such as the automobile industry, where aluminum is used in fairly large quantities, is reported as the only development likely to bring about a revival of interest in this metal. The price of 30 cents is still in effect locally.

Education of the Plumbing Apprentice

(Continued on Page 34)

housework. Cooking, washing and the removal of the body and domestic wastes, formerly drudgery, are now simplified by sanitary conveniences. Formerly water had to be pumped or lifted and carried from the well, cistern or spring for drinking, cooking, laundry, bathing and other household purposes, and the wastes had to be carried and emptied. The water was often of questionable quality. The method and place of waste disposal in nine out of ten cases resulted in a nuisance. The back yard privy located at the greatest distance from the house to remove the possible odors in summer, added to the discomfort and inconvenience and the possibilities of added difficulties and irregularities in bad weather.

Go back thirty years or even twenty years and compare women's work then and to-day, and it will be found that most of the drudgery existing has been eliminated by the plumbing system. Hot and cold water for drinking, bathing and domestic purposes is conveniently arranged for use in the laundry, kitchen, bath and bed rooms. Domestic and body wastes are swiftly and safely removed from the immediate premises by the drainage system. Labor has been reduced, comfort and conveniences added and personal cleanliness simplified, pure water supplied, foul odors, unhealthful conditions and the elements favorable to the origin and development of disease have been removed.

Low First Cost of Plumbing False Economy.

Low first cost of plumbing installation is mistaken economy. A second class plumbing and drainage system in cost will prove itself a second class system in service. A year or so in service will reveal the inefficiency of the fixture, device or construction. Discomfort, inconvenience, cost of repairs, foul odors, insanitary and unhealthful conditions are the resulting penalties, which the occupant must pay.

Sanitary Plumbing Better Than Medicine

Sanitary plumbing is of more real value than medicine. Plumbing provides means for keeping the body, wearing apparel, the house and our streets and alleys clean. Cleanliness means healthfulness. A plumbing system stands for cleanliness, which also means that the plumbing system prevents where medicine cures, and prevention is more desirable than the cure.

Investigation has shown that in the absence of sanitary regulations and whenever each person is permitted to install a plumbing system according to his own ideas, insanitary conditions are sure to prevail. Shall the standard of plumbing regulations be determined by the person who lives in the house, by the owner, the manager, real estate speculator, material manufacturer or in conformity with the standard of living and decency?

A great many people still cling to the idea that plumbing codes are created and laws enacted for the sole benefit of plumbers and that the public is made their legalized prey. This idea is kept in motion by real estate speculators, specialty and material manufacturers and others whose only interests are mercenary. No humanitarian, social,

moral, financial or sanitary argument can be adduced against the enactment and the standardization of plumbing codes by state and nation. This will not only eliminate commercially interested individuals and corporations but any other organization whose interests are purely selfish.

The Value of Plumbing Codes and Plumbing Inspection.

To protect the public from insanitary plumbing and the influence of harmful surroundings caused by reckless competition, the use of cheap and defective material and improper installation, sanitary regulations are provided, regulating the location, construction, installation and inspection of plumbing.

I have purposely dwelt upon the definition and relaxation of plumbing to public health to impress upon you that the plumbing in a building is installed for the health, comfort and convenience of the occupants and must be viewed from a public health rather than a construction standpoint.

Plumbing is an important practical application of the laws of hygiene to individual environments. It provides the science of health maintenance.

You, young men assembled here, must have a foundation upon which to build your education.

You cannot make a man any smarter than he is, but you can give him information that, if properly assimilated, may be put to practical application.

When all is said: "An education means your ability to successfully cope with your environment."



Get Acquainted With the Pease Made in Canada Pipeless FURNACE

No.	Type	Capacity (Cubic Feet)	Size of Duplex Grating	
			Outside	Warm Air Collar
704	Economy	10,000	30 x 30	22"
708	"	14,000	36 x 36	28"
710	"	19,000	36 x 36	28"
714	"	28,000	40 x 40	30"
716	"	45,000	45 x 45	36"
718	"	70,000	45 x 45	36"
720	"	80,000	45 x 45	36"
14-28	Brampton	7,000	22 x 24	16"
18-34	"	10,000	30 x 30	22"
20-37	"	14,000	30 x 30	22"
22-40	"	18,000	36 x 36	28"

File This Away for

Future Reference

Write to-day for latest prices.

Pease Foundry Company
Toronto Limited Ontario

Pease Western Foundry
Winnipeg Limited Manitoba

Rivets Mean Strength

In a paper read by Harry Brearley, Esq., before the British Iron and Steel Institute, May 5 and 6, it is stated,—

*"The idea that a Weld could
ever be perfect is quite illusory."*

Insurance companies will not insure tanks or boilers under high pressure unless riveted.

Safety First

Specify Riveted Range Boilers

Toronto Hardware Manufacturing Co., Limited

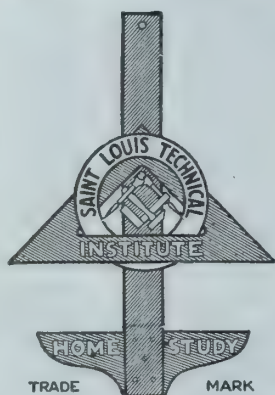
HOYT

WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.

Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.

Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.

Courses in SHEET METAL PATTERN DRAFTING.

Courses in HEATING AND VENTILATING ENGINEERING.

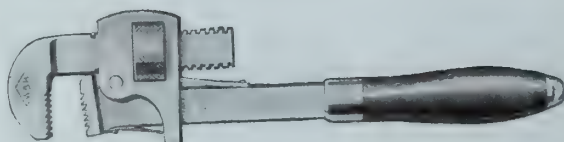
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O. W. KOTHE, Prin.

St. Louis, Mo.



Williams' Stillson Wrenches

Are sturdy and dependable—well balanced—positive in grip—powerful in action.

The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

Wood and Steel Handle Patterns—eight sizes, 6 to 48 inches.

Ask for Booklet

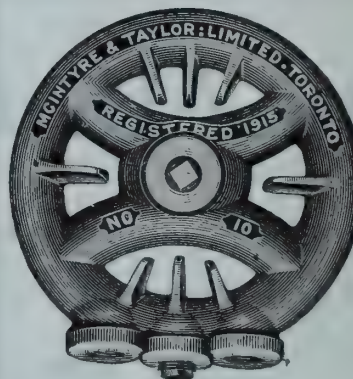
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LIMITED**

"The Wrench People"

Formerly Canadian Branch of
The Whitman & Barnes Mfg. Co.

77 Thorold Road

St. Catharines, Ont.



TORONTO

Burrow, Stewart & Milne Co., Ltd.; Canada Pipe & Steel Co., Ltd.; Cluff Bros.; Crane Ltd.; Dominion Radiator Co., Ltd.; The Empire Mfg. Co., Ltd.; Gurney Foundry Co., Ltd.; Jas. Morrison Brass Mfg. Co., Ltd.; W. A. Porter & Co.; Jas. Robertson Co., Ltd.; Standard Sanitary Mfg. Co., Ltd.; Steel & Radiation Co., Ltd.; Taylor-Forbes Co., Ltd.; Warden King Ltd.

WINNIPEG

J. H. Ashdown Hardware Co., Ltd.; Burrow, Stewart & Milne, Co. Ltd.; Crane Ltd.; Dominion Radiation Co. Ltd.; Gurney North West Foundry Co., Ltd.; Jas. Robertson Co., Ltd.; Vulcan Iron Works Ltd.

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VANCOUVER

Crane Ltd.; Gurney Foundry Co., Ltd.; Taylor-Forbes Co., Ltd.

CALGARY

J. H. Ashdown Hardware Co., Ltd.

GUELPH

Taylor-Forbes Co., Ltd.

HAMILTON

Burrow, Stewart & Milne Co., Ltd.; Hamilton Stove & Heater Co., Ltd.; C. Marks & Co.; Standard Sanitary Mfg. Co., Ltd.; Taylor-Forbes Co., Ltd.

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The Empire Mfg. Co., Ltd. The Hobbs Hardware Co., Ltd.

ST. JOHN, N. B.

Jas. Robertson Co. Ltd.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

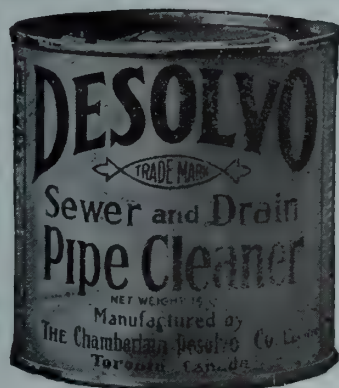


Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE : 136 SIMCOE ST., TORONTO



Clears Clogged Pipes

This Time-and-Money-Saver for the plumber clears clogged or frozen pipes promptly, and does a better job in less time.

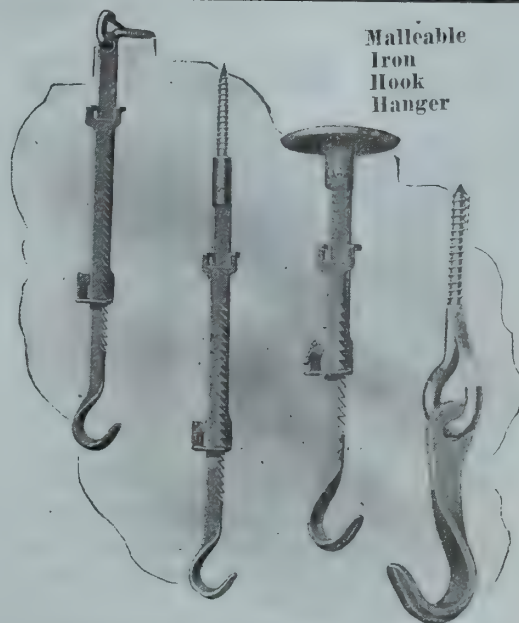
This means money saved, and increased profit, on every job where frozen or clogged pipes must be cleared.

It will pay you to keep it on hand, not only to shorten your own work on such jobs, but for profitable sales to your customers.

CHAMBERLAIN DESOLVO CO., LTD.

109 Church St. Toronto

Eastern Canada Representatives: Richardson & Bureau, 55 St. Francis Xavier St. Montreal. Ontario Representative: L. F. Mayne, 875 Trafalgar St. London, Ont. Western Canada Representative: N. D. McPhail & Co., Standard Bank Bldg., Vancouver B.C.



The great advantage of the No. 5 hangers is that they can be put in line and readily adjusted to any pitch wanted. Furnished with extension pieces up to ten feet this hanger is instantly adjusted up and down by simply throwing back the cam.

Send for a Beaton & Cadwell Catalogue. You will find that we manufacture a variety of Steam Specialties of interest to Canadian Plumbers and Steamfitters.

The Beaton & Caldwell Manufacturing Co.
New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co
New Birks Bldg.
Montreal

Western Agents
A. E. Hinds & Co
Chamber of Commerce
Winnipeg



Genuine Wolverine Simplex Traps

The Trap you have always used—adjustable anti-syphon—easily and quickly installed—no joints to wire.

Mail us your specification for your requirements. We give special attention to mail orders and can ship promptly.

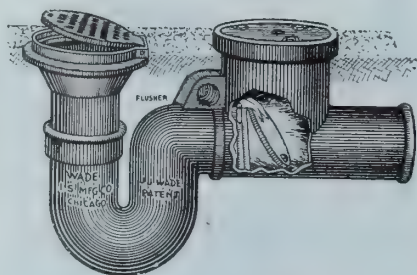
Our business is specialties for Plumbers and Steamfitters.

Wolverine

LIMITED

76 Nelson St., TORONTO

Wade Drain Trap



B Fig. 17—Floor Drain Trap

Gives Satisfactory Service

The Wade accessible clean-out Floor Drain, Flushing Cesspool Back Water Gate Trap—valve combination—gives satisfactory service wherever installed.

Endorsed by sanitary engineers and specified by leading architects.

Simple, practical designs that are easily installed and dependable in operation.

"Wade" Sanitary Fittings satisfy customers.

Wade Iron Sanitary Mfg. Co.

551-553 Fulton St.

CHICAGO, ILL.

Manufacturers and Dealers in

Back-Water Fittings, Iron Garage Basins, Floor Drains and All Descriptions of Iron or Gravel and Grease Basins.

To Advertisers and Readers of Sanitary Engineer

It is common knowledge that the union printers in many towns and cities in Canada and the United States are on strike. For the first time in its 35 years' history The MacLean Publishing Company is involved and we believe you will be interested in receiving a statement as to what the printer's unions are striking for and why their demands cannot be granted.

A year ago (although the wage agreement at that time had over a year to run) the Toronto Publishers and Master Printers gave their employees voluntarily a 10 p. c. advance in wages, making the minimum wage \$35.20 for a 48-hour week. This was given in recognition of the fact that living costs were then advancing. This voluntary agreement for \$35.20 a week expired June 1st. Notwithstanding that the cost of living has declined 22 p. c. since March, 1920, the printers' union demanded a 44 hour week and a wage of \$44.00. This means four hours per week less work and an increase in rate of pay per hour of 33 per cent. Employing printers can grant neither shorter hours nor higher wages and the saner printers realize that their union's demands are unreasonable. A large percentage of our own men did not want to strike, but the union leaders in the United States have ordered it and the strike is on.

Negotiations have been carried on for months. The employing printers have been tireless in their efforts to bring about a settlement without a strike. They are now engaged in a fight, not only for their existence but for a principle in which every business man is interested. If the unions secure their unreasonable demands then the fight would surely be carried to other industries. Business men with whom we have discussed the matter have been most emphatic in urging us to take a most determined stand. "Stay with it and we'll stand with you," they say.

And so we shall "carry on". We shall be somewhat handicapped, especially at first there may be occasions when you can extend your co-operation and support and we feel that we can count on you. It is our intention to issue our publications regularly and as promptly as possible. There will be difficulties to be overcome, and for a short term our service may not be up to its usual high standard. If, therefore, your publication does not reach you on time, if we have to repeat a former advertisement, if proofs are not submitted, or if we fall short of full efficiency in any way, we ask your kind indulgence. We are fighting for greater efficiency at a critical juncture in the world's history, and your co-operation and moral support will help.

The
MacLean Publishing Co.

INDEX TO ADVERTISERS

Allison, K. B.	8
Amherst Foundry Co.	Inside front cover
Anthes Foundry Co.	6-7
Atlas Tank Works	40
Bastian Morley Co., Ltd.	39
Beaton and Cadwell	37
Burrows Stewart & Milne Co., Ltd.	29
Canadian John Wood Mfg. Co., Ltd.	3
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products	40
Chamberlain Desolvo Co.	37
Clare Bros.	31
Crane Limited	4
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co.	Outside front cover
Fittings, Ltd.	40
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Hause Mfg. Co., Chas. F.	40
Hoyt Metal Co.	36
International Malleable Iron Co.	27
Jardine & Co., A. B.	5
Katie Foundry	40
Kerr Eng. Co., Ltd.	8
Lord & Burnham Co.	9
Marks & Co.	40
McIntyre & Taylor, Ltd.	36
Montreal General Tool Co.	33
Mueller Mfg. Co.	25
McIntyre & Taylor	36
Morrison Brass Mfg. Co., Ltd., Jas.	33
Pease Foundry Co.	35
Port Hope Sanitary Mfg. Co., Ltd.	20-21
St. Louis Technical Institute	36
Stanard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	40
Toronto Hdwe. Co., Ltd.	35
Wade Iron & Sanitary Mfg. Co.	38
Warden-King, Limited	37
Williams & Co., J. H.	36
Wolverine, Ltd.	38



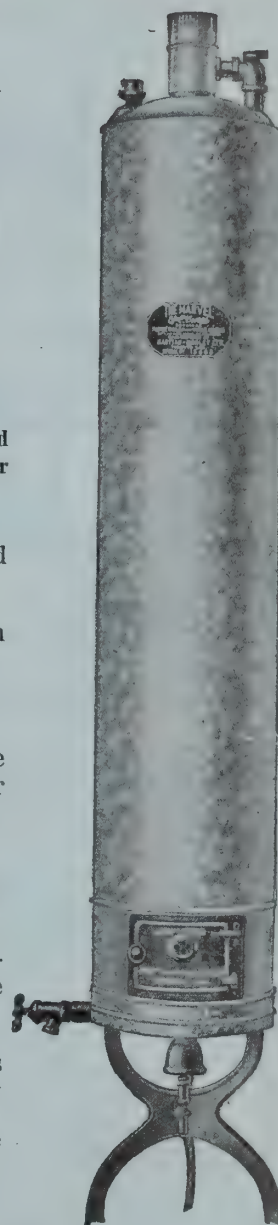
DO YOU KNOW

that the Marvel Combined
Range Boiler & Gas Water
Heater is:

1. Delivered to you and ready to connect.
2. Has fewer parts than other heaters.
3. Takes up less space.
4. And costs less to operate than any other heater you can recommend.

Have You Told

1. Your customers how little it costs to operate it.
2. What it will do—its high heating efficiency
3. That it is ideal for the bathroom, kitchen, garage, etc.



Investigate the Marvel Further

It's a continuous producer as well as a sales builder. And there is a generous profit in it for you.

All information on request.

BASTIAN-MORLEY, LIMITED

World's Foremost Heater Builders

Hanson St. and Hillingdon Ave.

TORONTO, CANADA

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

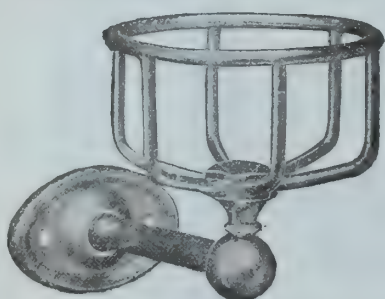
Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask Your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

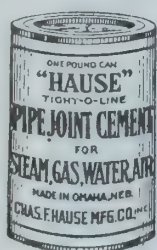
THE GENDRON MFG. CO. Ltd., TORONTO

Fittings Limited



Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa



Chas. F. Hause Mfg. Co., Inc.

Manufacturers of

**TIGHT-O-LINE
PIPE JOINT CEMENT**

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto

The London Engine Supplies Co., London

Superior
Plain



Closet
Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



WE MAKE TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Storage Tanks
Hot Water Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
105 Ritchie Ave.
TORONTO

PROFITS
IN
COUNTRY
TRADE



This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

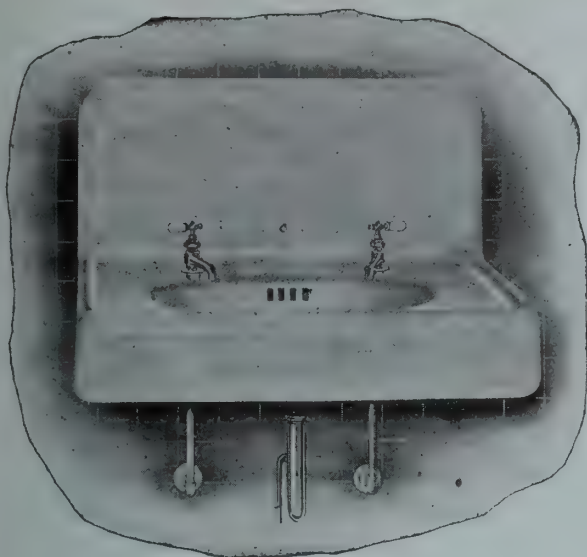
TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal, Quebec and Eastern Representative.



Porcelain Enamelled One-Piece Lavatory

Porcelain Enamel Plumbing Fixtures

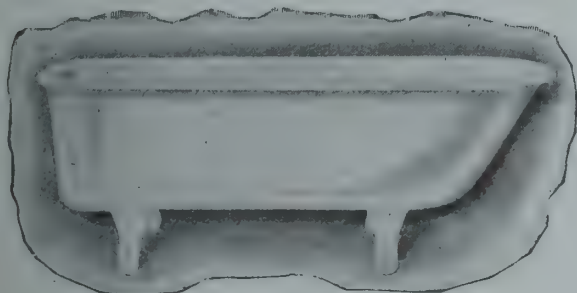


Porcelain Enamelled 2-Section Laundry Tubs

"Beaver" Porcelain Enamelled One-Piece Lavatory is illustrated above with Apron, Oval-shaped Basin with rear outlet, Patent Overflow and Chain Stay, on concealed Brackets.

Dimensions—Size of Lavatory 16 x 20 inches; Basin 10 x 14 inches; Height of Back 8½ inches; Depth of Apron 4¼ inches.

Roughing in measurements—Centre to centre of Supplies 11½ inches; Centre of outlet to wall 6¼ inches; Centre of supplies to wall 3½ inches.



"Maple Leaf" Porcelain Enamelled Bath

Beaver Brand

"Beaver" Porcelain Enamelled 2-Section Laundry Tub, on painted iron stands, with Roll Rim and High Back, cast in one piece. Complete with two wringer holders, N. P. Soap Dishes, Plugs and Stoppers. Painted exterior.

Dimensions—Length over all, 52 inches; Height from floor to Top of Tub, 30 inches; Height from Floor to Top of Back, 40 inches; Front to Back, outside 25¼ inches; Front to Back Inside, 21 inches; Depth Inside, 13½ inches.

Roughing in Measurements—Centre to centre of Supplies, 9 inches; Centre to Centre of Outlets, 24½ inches; Centre of Waste to Wall, 6 inches; Centre of Waste to End, 14¼ inches; Height of Stands, 16¼ inches; Distance from Floor to Centre of Supplies, 34¼ inches.

"Beaver" Porcelain Enamelled Bath with 3-inch Roll Rim, for Bell Supply and Waste Fittings. Painted exterior.

Dimensions—Width over Rim, 29¼ inches; Inside Width, 23 inches; Height to Top of Rim, 21¾ inches; Inside Depth, 16 inches.

Amherst Foundry Co. Limited

General Office and Factory:

AMHERST, N. S.

AGENCIES:

Ontario:
McNarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes,
120 Lombard St., Winnipeg



VITRO
NOTROUBLE
TANK

The Reasons Why of Vitro Tanks

THERE are two features that recommend the Vitro Tank to the plumbing trade. First it is a handsome, high grade fixture—one that reflects credit on the man who installs it. Second, it cannot cause trouble—and there you have the great, outstanding superiority of the Vitro Tank. It cannot cause trouble for the customer—it is built for a life-time of service. And it cannot cause trouble for you—once it is installed your worries are over. There is no going back to “fix” it.

The Vitro “No Trouble” Tank is perfect, smooth-working and permanent. It is a tank that you will find it profitable to instal.

GALT BRASS COMPANY, LIMITED

GALT

CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

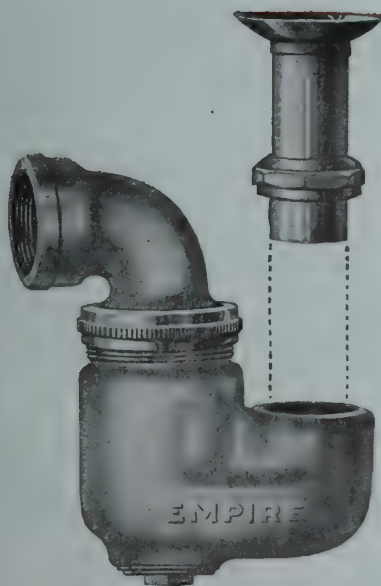
Vol. XV

TORONTO, AUGUST 1, 1921

No. 15



The Empire Centrifugal Trap



Cast Iron Centrifugal
Trap
A - 1829

The Newest Addition to the Empire Line

It has already made an enviable reputation among sanitary engineers.

This Empire Centrifugal Trap is equipped with adjustable sink connection, and has clean-out at bottom, which ensures instant cleaning. Examine the inside of its cast iron body and see the roomy smooth finish which prevents clogging.

It can be easily and quickly installed with ordinary iron pipe tools.

All Empire fixtures are rigidly tested before leaving the factory.

"If it's an Empire product you know it's right."

EMPIRE BRASS MFG. CO.

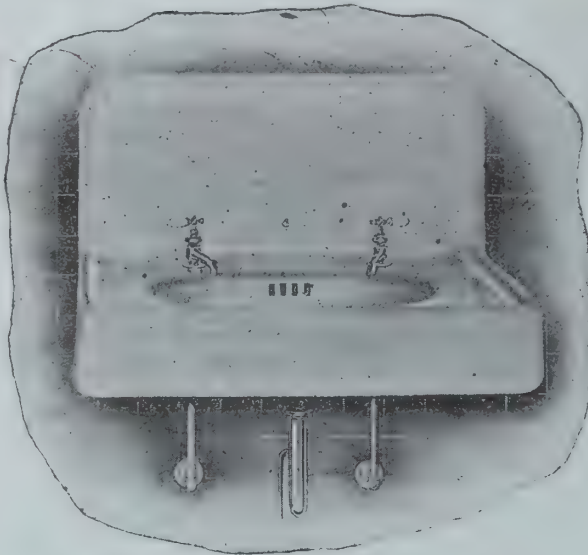
LIMITED

LONDON

AND

TORONTO

CANADA



Porcelain Enamelled One-Piece Lavatory

Porcelain Enamel Plumbing Fixtures



Porcelain Enamelled 2-Section Laundry Tubs

"Beaver" Porcelain Enamelled One-Piece Lavatory is illustrated above with Apron, Oval-shaped Basin with rear outlet, Patent Overflow and Chain Stay, on concealed Brackets.

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Amherst Foundry Co. Limited

General Office and Factory:

AMHERST, N. S.

AGENCIES:

Ontario:
Monarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes,
120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

Some Plumbers and Steam Fitters (otherwise known as "Sanitary Engineers") handle a sheet metal department, while others don't.

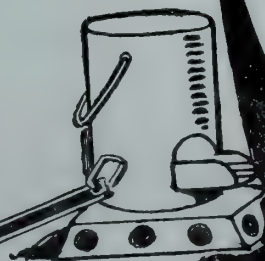
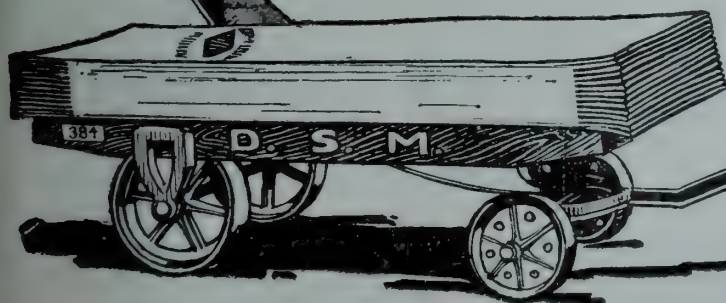
You can tell the fellows who cover both fields by looking in Dun's or Bradstreet's.

Why not let one overhead cover two lines, thus increasing your profit and prestige? And, by the way, the knowing fellows with the permanent trade use

"PREMIER" GALVANIZED STEEL SHEETS, Made-in-Canada.

Their unequalled "working up" quality, heavy coating, good deliveries and reasonable (deflated) prices all help in the day's work.

TINKER TOM.



Quality

is an essential in the upbuilding of any business with permanence. Quality is one of the three legs of the Tripod of Business. This Tripod is as necessary to the stable support of business as is the Famous Tripod of Life—the heart, lungs and brain—to human existence.

Efficiency

represents the second leg of the business tripod. Without efficiency there can be no success, because efficiency signifies a satisfactory relation between the result obtained and the effort invested. We burn so much coal to obtain a certain horsepower in steam. We invest a given sum of money in business; if the business is efficient it produces at satisfactory return.

Service

is the positive complement of Quality and Efficiency, without which they could no more stand alone than could a three-legged stool with one leg lacking. The amount of our service to society at large is practically the measure of our receipts from the world—especially in business.

Canadian Brass Company

Limited

GALT

-

TORONTO



Schools! Colleges! Y.M.C.A'S.!

DENNISTEEL

Made in Canada

Individual Steel Lockers

are made specially for the use of these institutions.

Because of the space they save, and the necessary safety they provide for the personal belongings of those who attend these places, Dennisteel Lockers have become standard equipment.

We specialize in Locker-building.

"All Dennisteel Products Are Fireproof"

WE ALSO MAKE

Steel Cabinets, Steel Shelving, Steel Bins, Steel Chairs and Stools,
Steel Lavatory Compartments.

Bank Cages, Railings, etc.

Ornamental Iron and Bronze.

Commercial Wirework of all kinds

General Builders' Ironwork

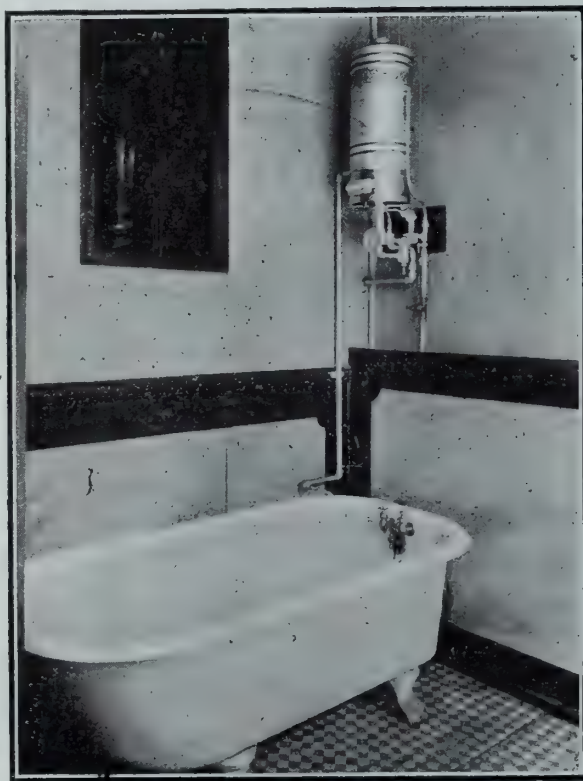
Boca Solid Steel Sash.

The Dennis Wire and Iron Works Co., Limited

London - Canada

Hamilton Halifax Windsor Montreal Ottawa Toronto Vancouver

“PRESTO”



A Reliable Heater for Profitable Installation

Water is heated by this heater instantaneously and all heat is conserved for its particular purpose. It saves gas, automatic lighting—no match, no special motor required, no cumbersome tank—saves kitchen space. Can be used with any gas system.

You can feel sure that your customers will be entirely satisfied with the “Presto” Gas Water Heater — and it will bring profitable business.

Full particulars will be given on request. Write to-day.

The Presto Manufacturing Co.

340 Amherst Street

Montreal

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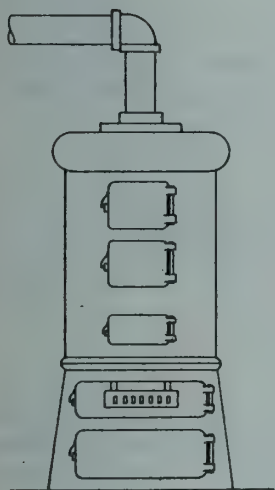
HOW STEAM BEHAVES



Casual observation of a boiling tea kettle impresses one with the fact that "steam rises" without force behind it. This is one of Nature's greatest gifts to the science of heating. It means that steam will flow to various parts of the piping system with little if any pressure behind it, if suitable provision is made for free escape of the air contained in the pipes and radiators.

It follows that care in installation must be used not to impose any obstacle to the free movement of either steam to the radiator, or the air out of the radiators.

Engineering practices have been well established for the selection of boilers and the sizing of piping, but the performance of a boiler depends on its erection and the internal cleaning or boiling out, before turning over to the owner.



The cleaning out of pipes of all foreign matter as well as the boiler is essential. Very often, drip pipes choked up with foreign matter are responsible for holding back water, causing poor circulation of steam through the steam main.

Use full size of opening on the boiler. Raise steam main to ceiling and then pitch down with even grade, so condensate will flow in same direction as the steam. Take off all steam connections at 45 from steam main. See that steam mains and boiler are well covered with insulation to **Save the Heat.**

*This is the second of a series of talks on steam heating, appearing monthly in Sanitary Engineer. You will find all very interesting and of help in your daily work.

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

Made in Canada

C. A. DUNHAM COMPANY, Limited, Toronto, Ont.

Halifax

Vancouver

Winnipeg

Ottawa

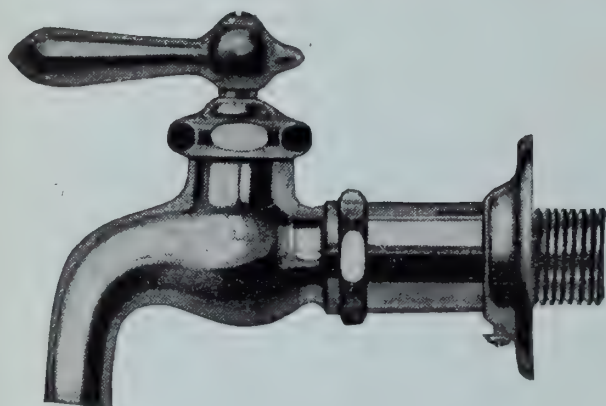
Montreal

Calgary

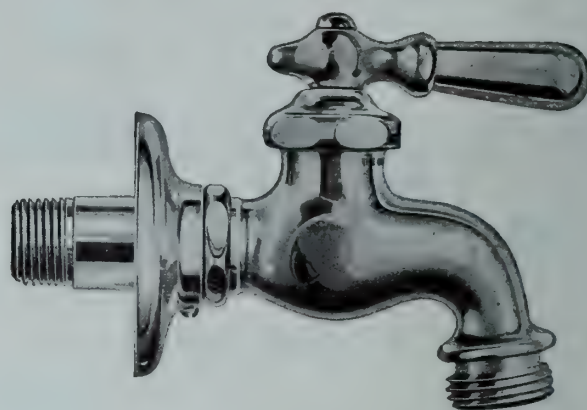
London; 233A. Regent Street W. 1.

Sink Faucets

EASY ANSWERS TO PLUMBERS QUESTIONNAIRE



A1002



A1000

Q. What is the difference between your faucet and other makes?

A. The Quatern Faucet differs from other makes in that **ALL** of the **wearing parts are easily removable and renewable**. These are contained in one Standardized Interchangeable Working Unit which fits into and operates perfectly in every faucet bearing the Quatern name.

Q. Do you guarantee your faucets not to leak?

A. No, any faucet which receives friction from running water, the brunt of the pressure, and the constant handling and operation by a variety of people, will leak some time or other. The Quatern is so constructed as to **make repairing easy and cheap**.

Q. Well, if yours leak, too, why are they better than other makes?

A. Because when a faucet leaks, **the water eventually cuts across the seat**, makes the leak greater and destroys the seat. In the ordinary faucet the seat is part of the body, so the faucet itself becomes useless. In the Quatern, **when the seat is destroyed a new seat may be put in**, making the faucet as good as new in operation.

Q. How do your faucets stand up under high pressures?

A. As well as any make on the market, **better than any other quick compression type**. This is due to the combination of high pressure and vibration in buildings tending to open quick compression types which close **AGAINST** the pressure. Quatern closes quickly, but **WITH** the pressure, thus eliminating trouble.

The Wallaceburg Brass & Iron Mfg. Co., Limited

WALLACE BURG, ONT.

TORONTO

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Mr. L. N. Vanstone

WINNIPEG

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Moneriff & Endress, Ltd.

Our Trade Mark Is a Guarantee



THE MODERN BOILER

There is complete strength in the electric weld—no holes are punched to weaken the shell. Rivets, solder are not needed to bolster up the electric weld. Specify the Electric Weld range boiler. Standard size for new work or replacement.

GUARANTEE

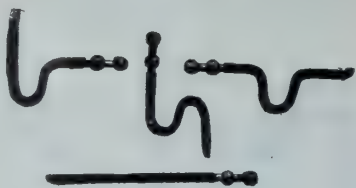
Specify the electric weld range boiler and your profit is assured.

We realize that Plumbers should not be called upon to lose their time when replacing a defective range boiler therefore we have arranged to pay the sum of \$2.00 in every case when an "Electric Weld" boiler has to be replaced as well as provide a new boiler.

The Canadian John Wood Mfg. Co.

Limited

Grand Trunk and Hillingdon Ave. Toronto, Canada



A New High-Grade Bending Spring

The "C. & H." Bending Spring is as far ahead of the old Spring as daylight is ahead of darkness.

1. Made of special flat-faced steel wire—does not crimp the pipe.
2. By turning the handle to the left, spring is released and may be easily withdrawn from the bend.
3. Attachment for connecting iron rod so that bend may be made any distance from the end of pipe.
4. No wear out to them.

They cost a little more but are worth ten times as much and mean an actual saving. 1¼", 1½" and 2" sizes in stock. Send us a trial order.



W. H. Cunningham & Hill, Limited

Sanitary and Heating Specialists

269 West Richmond St., Toronto



STEAM AND WATER FITTINGS

Semi-Rotary Pumps

Embodying every improvement, every detail that is found to give the best possible results in long, reliable service; that, and the renowned UBEL quality, are the reasons for the continuous success of UBEL SEMI-ROTARY PUMPS.

Double and Quadruple Acting Semi-Rotary Pumps for Domestic and Trade purposes of every description. Contractors' Pumps, Ships' Pumps, Rotary Suds Pumps for Machine Tools, Plumbers' Force Pumps, Boiler Test Pumps, etc.

Write for Catalogue Section P. Free upon application.

United Brassfounders and Engineers Limited

FIVE WORKS
HEAD OFFICE
EMPRESS
FOUNDRY



3000 WORKERS
CORNbrook
MANCHESTER
ENGLAND

BRITISH
MADE



For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. CUNNINGHAM & HILL Limited

269 West Richmond Street
Toronto

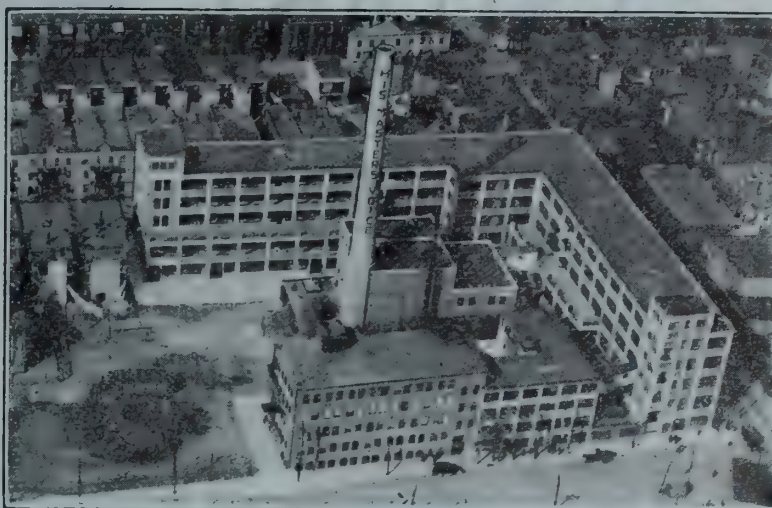
(Formerly W. H. Cunningham & Co.)

**"His Master's
Voice" People
Use
JENKINS
VALVES**

Successful manufacturers like the Berliner Gramophone Company realize the importance of dependable equipment at every point and, naturally, "Jenkins" is the choice wherever valves are used.

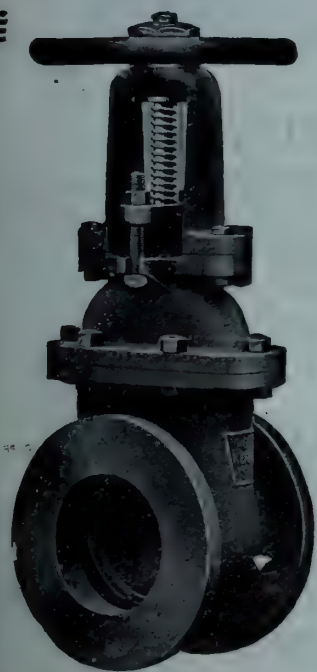
Many years ago Jenkins Valves were installed in the original Berliner plant and functioned so satisfactorily that the Company insisted upon similar valve equipment in the big new factory addition recently completed.

There are no complaints or "come-backs" when Jenkins Valves are installed. And there's a type and size to meet every requirement of plumbing, heating and power plant service.



Aeroplane View of The Berliner Gramophone Co's Plant at St. Henry, Montreal

Jenkins Bros.
LIMITED
Head Office and Works: 103 St. Remi St. MONTREAL Can.
TORONTO & GREAT QUEEN ST. LONDON, ENGLAND VANCOUVER
AGENCIES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD



**Kerr
Valves**
Give
Character
to Work



They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them. Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing-box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers

- Walkerville, Canada

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, AUGUST 1, 1921

No. 15

CONTENTS

Definite Action to Stimulate Building	13
Tests of 16-inch Roof Ventilation.....	15
Price Recessions on Plumbing Supplies.....	17
Building Activities In June.....	17
Sheet Metal Work. Patterns for Tapering Elbow.....	18
Editorial.....	19
Sewage Disposal for Small Communities.....	22
Using Small Blowers in Furnaces.....	23
News From Here and There.....	24
Construction, Contracts and Tenders.....	24
Market Conditions and Tendencies.....	25
Plumbers have Live Baseball League.....	32

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THE "PUSSYFOOT"
SILENT — EFFICIENT — DURABLE



PLUMBERS

Ask Your Jobber for

'Pussyfoot' Closet Tanks

NEAT HIGHLY FINISHED

BEAUTIFUL SILENT

EFFICIENT DURABLE

If he cannot supply, order direct.
You should, at least, see this up-to-the-minute Tank.

Large Water-chamber Valve, and
guaranteed a perfect long life tank.

ALSO SPECIFY

Aristocrat Laundry Tub

If you get this Tub, you have the
highest quality ever made, with a
clean smooth finish.

Our IDEAL CENTRIFUGAL TRAPS
& HYDRAULIC DRAWN TRAPS
are all Canadian made.

Specify to Your Jobber

"Pussyfoot" Closet Tanks — "Aristocrat" Laundry Tubs — "Easy" Wiping Solder
"Imperial" Soldering Paste

THE CANADA METAL CO., LIMITED

Hamilton — Montreal — TORONTO — Winnipeg — Vancouver

"Standard"

PLUMBING FIXTURES



Winning Customers

If you suggest a bathroom the arrangement of which is extremely pleasing and convenient, and recommend fixtures of quality that are modern and correct your service and individuality will become favorably known and many new customers will result accordingly.

Business built on service has a real foundation.

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Vancouver:
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"Made In Canada"

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Published
First
and
Fifteenth
of Month

Vol. XV.

TORONTO, AUGUST 1 1921

No. 15

Definite Action To Stimulate Building

First Concerted Action Taken at Joint Conference of all Branches of Building Trades in Toronto—Consider Question of Lowering Workmen's Wages 10 Cents Per Hour—Revision of Freight Rates to Lower Delivery Costs on Building Materials Suggested

THE first definite action along concerted lines, to arouse the building industry from its inertia of the past five years was taken at a joint meeting of those interested in the various branches of the industry, in Toronto. This was not entirely a local conference, there being representatives present from various parts of Canada, and special representatives with authority to act for dominion-wide interests. There were representatives of the Canadian Manufacturers' Association, Toronto Building Trades Council, the Builders' Exchange, manufacturers and building supply house representatives, contractors, architects, and organizers of the various trade unions interested. Senator Robertson, Minister of Labor, was Chairman.

After an all-day discussion of the various phases of the question action became confined to resolutions dealing with the lowering of wages of the trades interested in building, to the reduction of freight rates on building materials, and to the prospect of lower prices on building materials.

The actual resolution, endorsed by labor representatives and which they will put before their respective unions, was moved by J. B. Carswell, Carswell Construction Co., seconded by T. A. Woods, representing labor. The proposed cut in wages, if accepted, will be effective from July 25. The resolution is as follows:—"Moved that inasmuch as figures have been presented at this meeting to show that material costs are rapidly declining, that costs of living are also rapidly declining, and that a reduction in wage rates as suggested below can be put into effect without in any way lowering the present standard of living; Therefore be it resolved that the 19 representatives from the Building Trades Unions take back to their respective unions the suggestion that a voluntary reduction of ten cents per hour be put into effect on July 25. Further, that another

meeting be held between these 19 representatives and the Builders' Exchange on the 25th inst. to conclude the agreement. That the building material manufacturers be present at the same meeting to bring in all and every suggestion possible to further reduce material costs."

Want Reduced Freights

As it was clearly demonstrated by various manufacturers and supply men that high freight rates on their products was largely responsible for high costs, a resolution was passed calling for reduced freight rates on building supplies. A committee was appointed representing the various interests, to confer with the Canadian Freight Ass'n. and, if necessary to make application to the Board of Railway Commissioners for a complete revision of freight rates on those commodities used in the building industry in order to lessen delivery costs. This resolution was moved by F. B. McFarren representing brick manufacturers and seconded by R. J. Fuller representing the contractors.

In opening the proceedings Senator Robertson attached significance to the fact that labor representatives were in conference with manufacturers and supply men in the offices of the Canadian Manufacturers' Ass'n. He thought this was an indication that both sides were showing a more co-operative spirit. In opening the discussion on the problems of the building industry, he emphasized the fact that the unemployment created by lack of building was one of its most serious aspects. In giving figures showing that at present 16.74 per cent. of Canada's 200,000 workmen are out of employment, Senator Robertson painted a dark picture of what the forthcoming winter would bring forth unless some activity was awakened in this important industry.

Labor Shouldn't Bear Whole Decrease

Statistics were given, bearing on this subject, which showed clearly where the adjustment was most needed. He did not think that labor should be called upon to bear all the brunt of the reduction required in building costs, citing the fact that while wages (average) in eight branches of industry in 1914 were 42 cents per hour, this wage is now 86 cents per hr. an increase of 101 per cent. whereas building materials were still 118 per cent. above 1914 levels. He also pointed to the fact that the cost of living was now only 63 per cent. above 1914 levels and compared with the levels of building material prices Construction costs were shown to have increased from 141.5 in 1914 to 403 in May 1920 and are now 309.

Discussing the matter from another standpoint Senator Robertson stated that it was the desire to maintain the standard of living of Canadian workmen as far as possible but that the unfortunate part was that those countries with which Canadian products were in competition were not maintaining any such standard. He compared the wage of \$44 per week paid the steel worker in the U. S., with the approximate wage of \$35 per week in Canada (due to difference in exchange, etc.), with the wage of \$5 paid for the same amount of work in the same industry in Germany, \$9 in Japan. This condition, he pointed out, practically eliminated Canada's chances of developing an export trade in any of its products.

Construction Costs and Rents Hold

In reviewing various costs Senator Robertson attached significance to the fact that costs of construction and rents were practically the only items to remain unchanged, or to have increased recently. He pointed to the fact that the workmen in the building trades were not joining workmen in other industries in accepting lower wages in the interests of a stimulation of activity, and that the result was that there were many men out of work, rents were increasing and

at the same time there was a great need for housing accommodation.

Major L. L. Anthes, Anthes Foundry Co., Toronto, told how his firm, in company with others had kept plants operating throughout last winter largely to give employment, and that warehouses had been filled with stocks for which there was no demand.

Another manufacturer suggested lower freight rates on building materials and asked that the unions adopt a more "elastic" attitude toward their men so that workmen who could find no employment in their particular line would be allowed to take up temporary employment elsewhere if available, and not have to be given relief while other work offered. He drew attention to the fact that while the export markets were hard to develop under existing conditions, that there was a great need for food-stuffs abroad and that this export market for part of Canada's great wheat crop this year should help things considerably.

Not Lowering Wages

A contractor stated that it was not the desire to reduce the workmen's wages but that they should be merely adjusted in proportion to declines in the cost of living since the peak was reached. The average purchasing power of the dollar would be unchanged.

An architect stated that there was \$8,000,000 worth of building in prospect in Toronto alone. He said this was not held up so much because of high costs, but because of the uncertain conditions prevailing which had to influence their recommendations to clients.

The relation of financing to prevailing high costs in the industry was dealt with, representatives of labor drawing attention to the fact that loan companies would not lend money freely for building at present because they figured there would be a big decrease in sale value within the next few years. It was also pointed out that under the present system the builder was forced to secure a larger price for the building to offset the loss consequent upon the discounting of the second mortgage. A labor organizer asked why the loan companies would not take a mortgage for the whole value of the land and up to about 60 per cent. of the value of the property erected, and thus avoid the loss outlined.

Labor Makes Report

At the opening of the afternoon session the labor representatives presented the report of their deliberations concerning the proposed reduction in wages. It was pointed out that while the hourly wage seems large in some cases, that the average earnings for the year in many trades falls low. It was shown that the average yearly wage of carpenters is \$1600, and for bricklayers \$1100. It was pointed out that lower wages would reduce the buying power

of the working classes and this would dampen the needed stimulation of buying necessary to right conditions. Labor also suggested that architects, general contractors, supply men and others curtail their incomes in like proportion in order that the general effect might be as extensive as possible. Replying to this the general contractors stated that 80 per cent. of the cost of a building could be influenced by labor alone, that 15 per cent. represented the contractors' overhead and 5 per cent. represented taxation and other such charges. It was stated that contractors were studying means to increase efficiency and reduce costs and that labor must do the same thing. Replying to labor's contention that wage reductions already effective in some lines had not stimulated trade, Senator Robertson pointed out that general reductions in all branches of trade would have this effect in that it would allow all branches to work in harmony toward a lower general level.

The Plumbing Industry

George Clapperton, Bennett & Wright, Toronto, plumbing and heating engineers, stated that costs were being lowered as much as possible, that in the plumbing and heating industry an agreement had been made with the men at a rate of 90 cents an hour where formerly \$1.15 was paid, and that steps were being taken which would increase the efficiency of the industry probably 25 per cent.

Peter McMichael, Dominion Radiator Co. stated that confidence and co-operation was needed, adding that the manufacturers as a whole were handicapped to-day because people would not invest their money in the country's industry. He emphasized the importance of workmen producing in proportion with the wages paid them, as a factor in bringing costs to their correct basis.

Combatting the contentions of labor that building materials should be reduced further before there was a reduction in wages, Senator Robertson pointed out that while it took \$2.13 to purchase materials which \$1.00 would have bought in 1914, and it took only \$2.01 to purchase labor which \$1.00 would have purchased in 1914, yet building materials were on the downgrade, having declined from \$2.84 as compared with \$1.00 in 1914, while labor in these trades was practically at a standstill.

Labor Cost is Fixed

J. P. Anglin, contractor of Montreal, added that the labor cost is a fixed one while materials is not fixed, that there is no combine to maintain prices of the materials, and that therefore in view of the gradual reductions taking place on materials, the big factor is to get labor costs moving on a downward trend.

In speaking to the resolution calling for lower freight rates Mr. Fuller point-

ed out that these rates are pyramided in many cases and this increases the handicap. It was shown by a brick manufacturer that coal to-day costs what coal and the brick it burned cost in 1914.

Fred Armstrong, Port Hope Sanitary Mfg. Co. spoke briefly pledging the support of his company to any reasonable plans that might be made to stimulate building activity.

"ARE YOU PAYING ENOUGH FOR PLUMBING AND HEATING?"

Under this heading a number of Ottawa sanitary and heating engineers are advertising in their local papers as follows:—

The Board of Control, your representatives, custodians of your money, answer "No," and are recommending to the City Council that an increase be granted the Plumbers and Steamfitters in spite of the fact that the Laborers, Carpenters, Bricklayers and in fact all the Building Trades have accepted a reduction of from 10 to 15 per cent. or settled on last year's basis.

It is your fight, are you satisfied to pay more? The Board of Control, by their recommendation to the Council, answer this question for you and say, "Yes, you must."

The Council will undoubtedly reject this recommendation if you strenuously show your disapproval.

The following employers, who engage 85 per cent. of the Plumbers and Steamfitters under ordinary conditions, are fighting this strike to give the Public a reduction in plumbing and heating work and stimulate the building industry.

PLUMBERS AND STEAMFITTERS' RATE LAST YEAR WAS 89c. WITH THE COST OF LIVING FALLING, WHY SHOULD IT BE INCREASED?

YORK TOWNSHIP PLUMBERS

NOW READY TO STRIKE BACK

The Amalgamated Ratepayers' Association of York Township met to discuss municipal affairs.

It was suggested that city plumbers be excluded from works in the township. Under the present by-law plumbers residing in York Township were not allowed to ply their trade within the city, while city plumbers would work in the township on an equal footing with local men. It was finally decided to ask the council to arrange a conference with the board of control and try and get justice for the York plumbers.

Tests of 16-inch Roof Ventilators

Study of Two Most Important Factors Affecting the Performance of a Ventilator by Experts of the U. S. Bureau of Standards Reveals Many Interesting Facts Concerning Ventilation.

MUCH interest is attached to the following article revealing the result of tests by the U. S. Bureau of Standards, concerning 16 inch roof ventilators.

During the summer of 1920 a study of some fifty 16-inch ventilators was made at the Bureau of Standards. The following paper gives a brief summary of some of the results of the study.

The factors affecting the performance of a ventilator and the things which must be taken into consideration in the choice of a ventilator are so numerous that it was impossible to attempt a complete study. We limited ourselves definitely to certain specific phases of the problem and it must be kept in mind that the tests about to be described are particular tests with a certain experimental arrangement. The question as to how far the results of these tests ap-

ply to any other arrangement is left open.

Our experiments were confined to questions concerning the volume of air exhausted per minute by the ventilators which is dependent upon many factors. For example, if the air does not have free access to the room, little air will be exhausted. If there are obstructions near the ventilator the performance will be affected.

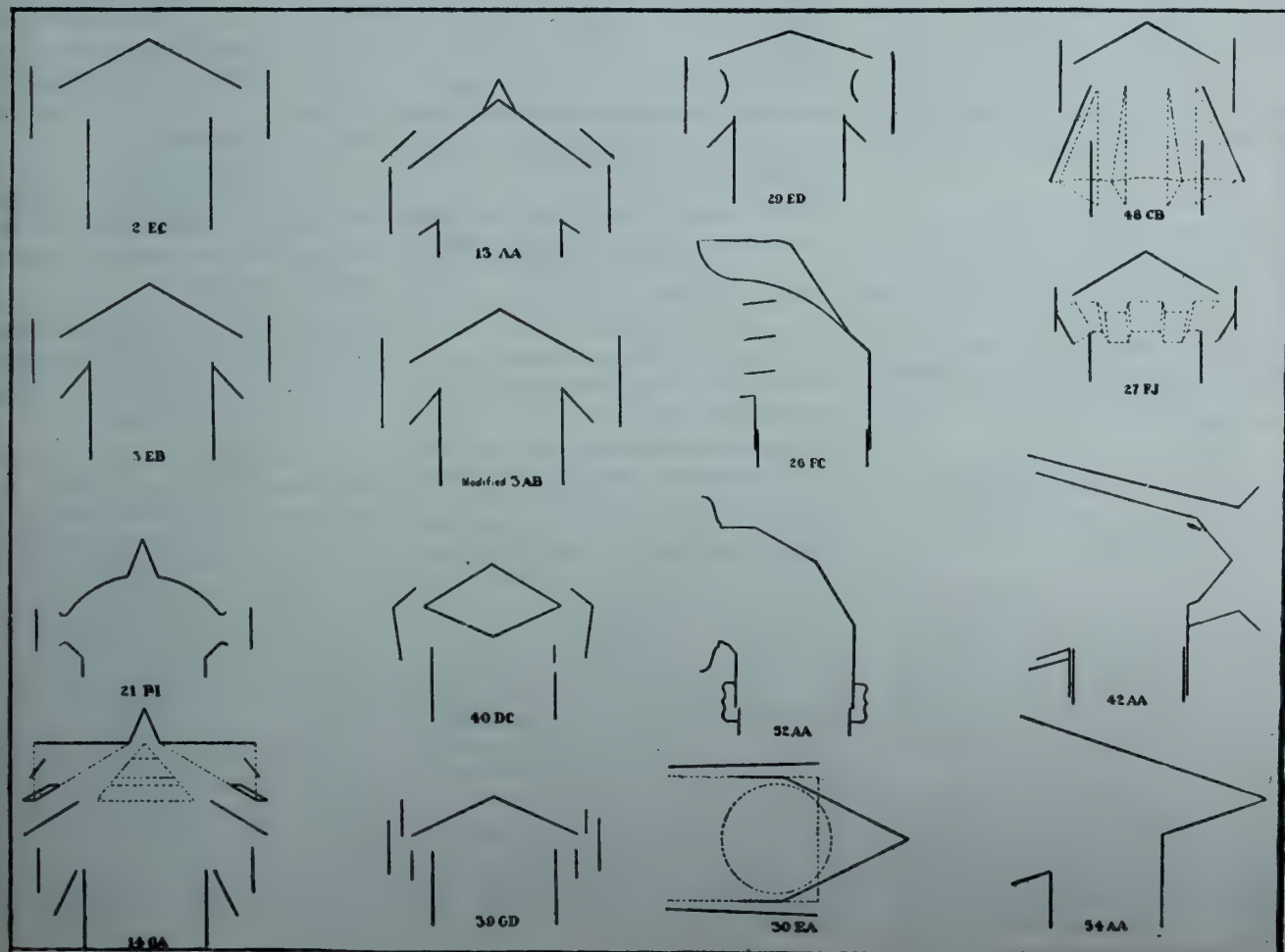
The most important factors, however, affecting the performance of a ventilator are (1) the difference in temperature between the air in the room and the air outside, and (2) the speed of the wind blowing across the top of the ventilator. Our experiments were restricted to these two factors.

The effect of a temperature difference is to produce the familiar chimney action, an action common to all ventilators, in-

cluding an open pipe. The design of the ventilator affects the amount of air exhausted under a given temperature difference only in so far as more or less resistance is offered to the flow of air.

If the ventilator passage is obstructed, less air will be exhausted. From this standpoint, a straight open vertical pipe is the ideal ventilator, but considerations of weatherproofness prohibit its use.

The exhaust due to the wind depends primarily upon the design of the ventilator. Our first experiments were arranged so that the temperature at the entrance and exhaust were the same, so that there was no chimney action. The wind was produced by one of the wind tunnels of the Bureau of Standards. For the purpose of these tests the exhaust fan of the tunnel was removed and a blower fan substituted. By means of suitable honeycombs the velocity was made as nearly uniform as possible across the stream.



The ventilators were placed in front of the mouth of the tunnel on the end of a vertical pipe, the wind stream being horizontal. A horizontal pipe containing the measuring apparatus was joined to this vertical pipe by means of an elbow. The speed of the wind was obtained from the readings of a tachometer connected to the shaft of the wind tunnel motor, the readings of the tachometer having been previously standardized in terms of an anemometer placed in the position later occupied by the ventilators. The volume of air exhausted was obtained from the deflections of a small wire suspended freely in the horizontal pipe from a watch-bearing mounting.

Measurements were made of the volume of air exhausted per minute by the ventilators at wind speeds of 4, 8 and 12 miles per hour. For comparison, index numbers or wind ratings were obtained by expressing the volume exhausted by a ventilator as a percentage of the volume exhausted through the open pipe in the same time at the same wind speed.

The wind rating of the open pipe is therefore 100 at all wind speeds. The accuracy of the measurements is about 5 per cent, and smaller differences in ratings are of no significance.

Some ventilators exhaust less air than an open pipe, some more; the best ventilators have a rating of 150, the exhaust being one and one-half times as much as from an open pipe. The exhaust of an open pipe with the set-up used was about 250 cubic feet per minute for a wind speed of 10 miles per hour.

In addition to the measurements of the volume of air exhausted at varying wind speeds with no temperature difference, measurements were made of the flow of air through the ventilators with a given difference in pressure in order to simulate the effect of a difference in temperature between the air of a room and the air outside.

An electric fan was placed at the entrance of the ventilator pipe line and the volume of air per minute passing through the pipe was measured at various speeds of the fan.

It is evident that if the fan is running at a uniform speed and the same flow is obtained with two different ventilators, the resistances of the two ventilators are equal and consequently under a given temperature difference the same volume of air per minute would be exhausted by the two ventilators.

If the flow through one ventilator is less, its resistance is greater and it would exhaust less air under the same temperature difference. Ratings were again made on the basis of the open pipe as 100. In these resistance ratings

100 is the maximum obtainable, since the resistance of the ventilator is added to that of the pipe. Ventilators may readily be divided into those of stationary and rotary forms, but any further sub-division for purposes of discussion is difficult.

The simplest type of ventilator consists of a cap over the top of an open pipe with a band around pipe and cap to keep the rain from beating in. Such a ventilator exhausted at 91 per cent. as much air as an open pipe at the same wind velocity. In other words it has a wind rating of 94. It permitted 86 per cent. as much air to pass as an open pipe in the second experiment. This will be expressed by saying that the resistance rating is 86.

A simple modification of Number 2 is shown in ventilator Number 3 EB where a lip is placed on the pipe. This ventilator is very sensitive as regards its orientation relative to the wind. On introducing a smoke stream it was found that the air passing under the band separates into two parts, one part passing under the cap and diagonally out at the sides of the ventilator, the other passing underneath the lip and around the pipe. The quantity of air going by the two routes depends on the orientation of the ventilator relative to the air stream. The results varied by about 10 per cent. in different experiments, according to the orientation. The ventilator had a wind rating of 96 and a resistance rating of 88.

To investigate more fully the effect of the band, the band was lengthened as shown in modified Number 3 AB so as to extend a little below the lip. The wind rating increased from 96 to 130 and on an examination with a smoke stream it was found that no air entered the ventilator at all.

The air blowing on the ventilator passed underneath the lip, the ventilator exhausting all the way around. Ventilator Number 13 AA of somewhat similar construction but of different proportions had a wind rating 138 and a resistance rating 95. Other modifications are also illustrated. Number 21 FI illustrates the effect of making openings in the ventilator too small for the air to pass out freely. Its resistance rating was 56 and its wind rating 85. Number 14 GA illustrates a very complicated construction of low resistance, resistance rating 100, wind rating 73.

Number 39 GD is another complicated one, resistance rating 75, wind rating 77. In the case of Number 29 ED extending the band below the lip increased the wind rating from 91 to 113. Its

resistance rating was 78. Number 48 CB is better than the simple types Number 3 EB but not as good as modified number 3 AB, its wind rating being 109 and resistance 93. Number 27 FJ is another ventilator with small exit passage for the air, its resistance rating being 50 and wind rating 80.

These ventilators are typical of the stationary ones and the surprising fact is that the best exhaust is obtained with a very simple construction.

Number 26FC (Figure 4) is a simple type of rotary ventilator consisting of an elbow with a wind vane to hold the opening away from the wind. Its wind rating was 87, resistance rating 83. Its resistance rating is low because of some large damper supports in the pipe which are not shown in the sketch.

Number 52AA differs from Number 26FC in that the pipe is free from obstruction and the air is deflected outward by means of a lip on the elbow. Its wind rating was 150, its resistance rating 95.

Number 30EA is another type in which air is permitted to pass through a passage in the ventilator. Its wind rating was 91. On stopping up the passage, the wind rating was increased to 135, so that the passage way is detrimental to the performance of this particular ventilator.

Number 42AA also has a passageway for the air. Stopping up the passage had no effect on the wind rating, the rating remaining 149.

As a result of this observation we designed the simple form Number 54AA. This cone type had a wind rating 149, the same as Number 42.

In conclusion, two points should be emphasized. The first is that no general statement can be made as to the relative merits of rotary and stationary, or mushroom and siphon, ventilators.

The performance depends on the particular models. It is possible to build a good stationary ventilator as well as a good rotary ventilator, and there are poor ventilators of each type.

The second point is that the most effective way of obtaining a large volume of air exhaust is by making use of the region of low pressure produced at the back of a properly designed obstacle. It is best not to allow the air to enter the ventilator for it must then be exhausted and will be exhausted at the expense of the air in the ventilator pipe.

Price Recessions on Plumbing Supplies

Numerous Revisions In Discounts Bring Lower Quotations On Many

Sanitary and Plumbing Supplies—Price Reductions Feature Current

Markets and Should Stimulate Activity in Fall Construction Work.

IN view of their marked influence in assisting the development of building activity the present marked changes are of more than ordinary importance to the trade.

Price revisions on plumbing and steam-fitting supplies, and the many similar products of vital interest to the sanitary engineer, continue to be chiefly of a downward nature. The general trend of basic prices is towards a lower level, and many outstanding recessions of this description are noted in the current market developments.

It is the reductions evident on a number of lines in a greater or less manner directly affecting the material costs of home building and the early erection of similar structures, which attract a marked degree of attention; for lower quotations on plumbing and steam-fitting products are generally expected to promote the proportion of Fall building. And market changes and decreased quotations tending to accentuate these conditions, include practically all recent price revisions.

While many other circumstances enter into the basic principles of construction, yet the cost of these specific supplies is an important factor in this connection. The contention has been evident that certain manufacturers and distributors

of supplies have failed to meet the popular demand for lower prices; and in refuting this reflection, those most directly concerned indicate that no legitimate ground exists for placing the onus of responsibility entirely upon any one specific element or cause. If high costs have served to retard necessary building, this phase has tended to greatly reduce the volume of business through

out the trade generally; while on the other hand, lower quotations should have the opposite effect of stimulating activity in all branches of the industry.

Cause of Lower Prices

It has been pointed out that the reduction in basic material costs and declines in production and overhead charges, have been primarily responsible for prevailing revisions up-to-date. Among such price changes are noted steel and wrought piping; soil pipe and fittings; standard closet outfits; radiators and boilers; wrought nipples and couplings; stove bolts; stove pipe wire; copper rivets and burrs; carriage, tinnerns and small rivets; boiler rivets and spring steel. The declines noted in a number of these items constitute the second or third price recession shown during recent months.

Other price changes to lower levels are expected varying conditions indicating this future possibility on additional products. Revisions in boiler tube prices have been anticipated in conjunction with the reduction in piping, while a feeling is prevalent in the trade, that increased discounts on conductor pipe, and eavestrough, would occasion no marked surprise.

IMPORTANT PRICE REVISIONS

Steel and wrought iron piping reduced, and new list issued.
Reduced quotations on soil pipe and fittings.
Prices on standard closet outfits again lowered
Discounts again revised to lower level on radiators and boilers.
Similar revised discounts lower pipe fitting prices on wrought nipples and couplings.
Stove bolt prices are lower.
Quotations on stove pipe wire reduced.
Reductions now in effect on copper rivets and burrs.
Lower prices on carriage and tinnerns rivets.
Decline in base price on boiler rivets.
Recession noted on spring steel prices.

BUILDING ACTIVITIES IN JUNE

Figures Show Decline From May Figures—

Good Showing for First Six Months

CONSTRUCTION activity in June Contracts awarded amounted to was \$422,700 less than in May. \$26,436,800 compared with \$26,859,500 in May, and by provinces are as follows:

	No. of Projects	Value
Ontario	1027	\$7,506,800
Quebec	360	6,861,100
British Columbia..	292	5,091,500
Alberta	167	2,776,000
Manitoba	231	2,214,700
Saskatchewan	103	1,188,100
Nova Scotia	69	411,600
New Brunswick ..	35	368,000
Prince Edward Is..	5	19,000
Total for Dominion..	2239	\$26,436,800

Residential building continues very active. In June, contracts for this class of construction totalled \$7,943,600 or 30.3 p. c. of the total. Business buildings amounted to \$10,027,800 or 37.6% of the total; industrial building, \$458,700 or 1.7% of the total; public works and utilities, \$8,006,700 or 30.4% of the total.

Good Showing During First Six Months

Building activity for the first six months of the year compares very favorably with the same period in previous years. The total investment represented by building contracts let from Jan. 1 to July 1 has amounted to \$111,763,500. At the end of January activity from the first of the year to date was 7.6% above the average for the preceding three years at the end of February, 21.9% ahead; at the end of March 8.7% ahead; at the end of April 8.6% ahead; at the end of May 8% ahead, and at the end of June 8% ahead.

The wholesale price index of 48 building materials declined to 309, a drop of 4.4 points for the month; making a total of 94 points or 23.5% from the high mark of May, 1920.

New Building In Sight

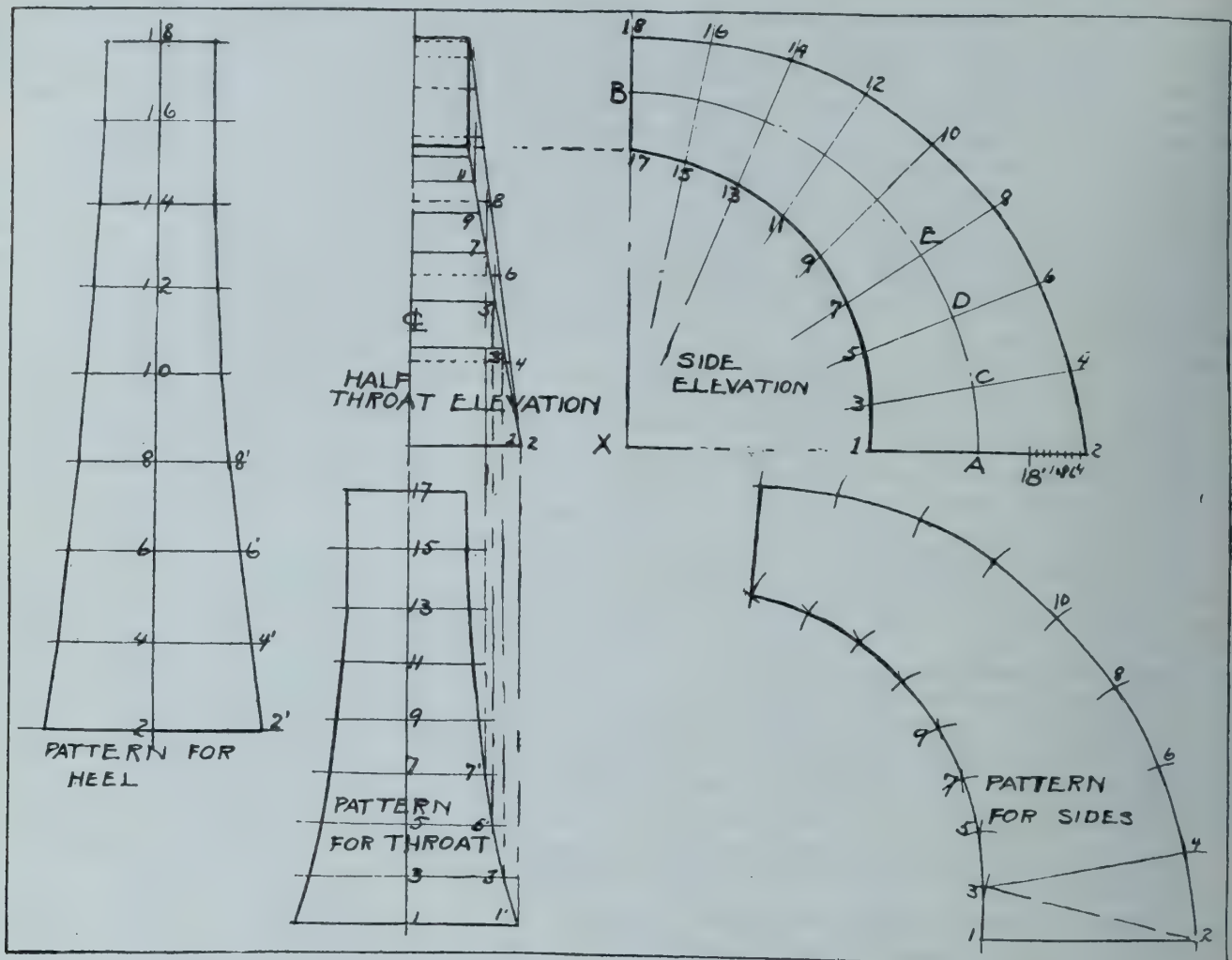
The demand for residences continues strong. Contemplated work was reported in June to the amount of \$16,500,700, distributed as follows:

	No. of Projects	Value
Ontario	250	\$6,134,300
B.C., Alta., Sask & Man.	284	5,423,100
Quebec	135	3,993,000
N.S., N.B. & P.E.I.	32	,950,390
	701	\$16,500,700

During the first six months of the year, \$168,748,500, contemplated new work has been reported. This is \$56,985,000 more than the value of contracts awarded and indicates the pressure of the demand for construction. Architects report that in many instances bids are being received from contractors at a lower price than the architects' estimates. This indicates that material and labor costs have receded where a substantial increase in activity may be expected.

Patterns for Tapering Elbow

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri



ON the range hood we considered some time ago was an elbow that transformed from 16"x16" to 8"x8", so we shall lay this out.

We first draw a right angle as A-X-B and describe the center arc A-B.

Divide this arc in any number of equal spaces and draw radial lines from the corner X.

Our point is now to proportion our elevation to give both throat and heel a uniform curvature along the center arc.

So, pick the half small width as B-18 and set as A-18'. Divide this space 18'-2 in as many equal spaces as you have in radial lines of elevation.

Pick these distances as A-4 and set as C-4; C-3; also A-6 and set as D-6; D-5.

Continue in this way until all spaces have been marked off and you can draw the outline for elbow.

Next draw a half throat elevation as shown. This is to show the flare of the sides.

The dotted lines represent heel lines, while the solid lines are throat lines. All are projected over from side elevation.

To set out the pattern for throat pick each space separately as 1-3-5-7-9, etc., and set in pattern below half front elevations as 1-17.

Draw stretchout lines and from each point as 1-3-5-7-9, etc., in throat of elevation drop lines into stretchout as 1'-3'-5'-7', etc.

Through these intersections draw the outline for pattern as shown.

The pattern for heel is set out by picking the girth as 2-4-6-8-10, etc., from side elevation and setting it off as 2-8 in pattern.

With dividers pick the half true diameters of throat elevation, and set them as 2-2'; 4-4'; 6-6', etc.

Repeat this until all points are established and draw the outlines of pattern as shown.

In setting out the pattern for side no true lengths need to be developed, since the rise is so slight that only a slight shortage is produced in the dotted lines. So this can be dispensed with.

Pick the girths from patterns for heel as 2'-4'-6'-8', etc., also throat as 1'-3'-5'-7', etc., and use them in pattern for side.

The elevation lines as 1-2; 2-3; 3-4; 4-5; 5-6, etc., are just simply reproduced in a triangulating fashion and the pattern is done.

Laps for seaming must be allowed extra.

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EVERYONE MUST TAKE RESPONSIBILITY

THE question of responsibility for present high costs in the building industry and of establishing those who should take the biggest share of the readjustment to lower levels, is a delicate one to handle. Naturally no one wants to stand any more than is absolutely necessary and some are inclined to think that the next step downward is due in some other quarter.

At the conference of building interests in Toronto some figures were given by Senator Gideon Robertson, Minister of Labor, which illustrate the exact standing of the various branches of the industry as compared with pre-war levels and which show where the "pruning" action might well be started.

The average wage in eight branches of industry concerned with building, is 86 cents per hour today compared with 42 cents per hour in 1914, or an increase of 101 per cent. In other words it takes \$2.01 to purchase labor today which \$1.00 would have bought in 1914. Today it takes \$2.18 to purchase building materials which \$1 would have bought in 1914. The cost of living is still 63 p. c. above 1914 levels.

Workmen point to the fact that building materials have not come down sufficiently but contractors answer that materials are steadily tending downward, that they have reduced from a peak of 184 to 118 (using 100 as pre-war index figure) and that material charges are not fixed, so that they may be expected to continue a gradual tendency downward.

A revision of costs in the building industry should affect all branches and keeping in view sacrifices already made. Such revision is bound to pinch, but everyone must be prepared for their share. The old idea of labor that manufacturers and supply men are trying to put something over them should be dissipated. The latter have given tangible evidence of their good faith, and in view of the fact that workmen in the building industry are about the only ones who have not suffered a decline in wages and that construction costs are maintained out of all proportion as result, it would seem to be in the best interests of all concerned for everyone to set aside such personal prejudices and agree to cooperate to the best of their ability in stimulating this industry. Full time at a slight reduction gives a better return than half time at full scale pay, and it has generally been the experience that when the stimulation has been effected the workmen benefit in proportion.

COOPERATIVE EFFORT WILL WIN

THE many and varied interests concerned with the building industry have at last seen that further ignoring the possibilities from co-operative effort in an endeavor to stimulate activity is going to lead into grave difficulties. For a long time the stagnant condition of this industry has hampered business in general and created much unpleasantness for all interested in it, whether they be manufacturer, supply dealer, contractor, architect or workman. The industry today is in a most peculiar condition, for even in the face of an almost unprecedented demand for their product, there is little or no work being done, workmen by the thousands are numbered among the unemployed, manufacturers and supply houses have had to curtail their efforts and warehouses are filled with stocks manufactured to keep workmen employed as long as possible and for which there is now no demand.

All this may soon assume a changed aspect as result of the important conference just concluded between the various interests. At this conference it was shown by architects that much work is "on the boards" but that it is not being proceeded with due to unsettled conditions. The consensus of opinion of those attending the conference was that a general reduction in building costs would stimulate activity. This statement is questioned by some who have pointed to reductions already made in this and other branches of industry and which have not been followed by any stimulation of business. It is thought however that the readjustment to lower levels in this industry will be merely one of the many which will have to be carried out in all branches of industry before the whole will move forward as a unit toward greater activity.

The financial side of the present condition of the building industry was also touched upon by some of the delegates. It is a recognized fact that the banks, loan companies and other financial houses have recently been withdrawing investments from building properties and real estate in the event of a possible reduction of values within the next year or two. Financial men have been credited with the statement that they would be poor business men to loan money on a security which may depreciate 25 p. c. in value in two years. In view of this condition the financial aspect of the present situation becomes an important one. If funds are not forthcoming at fair rates for investment in the building industry, it is going to suffer as result. Meanwhile definite steps should be hastened as soon as possible to get costs in this industry down to the point where much of this prospective business will become real business.

Opportunities for



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Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

THERE are three well known systems of testing house drainage, namely, by smoke, water and oil of peppermint. The smoke test is by far the most reliable for showing the defects in any drainage system: It consists of filling the drains with smoke so that it will find its way through any faulty joint or defective trap either within or near the house, at the same time showing the exact location of the various faults. For where smoke can penetrate, sewer gas will and in time endanger the health of the inmates of the house. Smoke is blown into the drains to be tested by a proper smoke testing apparatus which usually consists of a double-action bellows, communicating with a cylinder in which the smoke is generated by burning oily cotton waste. An India rubber ring is fixed to a flange at the end of the pipe which connects the cylinder to the drain acting as a plug when connected to the drain.

The best opening at which to blow the smoke through is the air inlet to the drain which should be located on the house side of the trap which disconnects it from the sewer or cesspool. As soon as the smoke is seen to be escaping from the soil pipe or ventilating stacks same should be sealed up as this is the highest point of the drainage system, and it can then be taken for granted that the pipes are fully charged with smoke. By closing all openings and filling the pipes with more smoke pressure is obtained and the smoke will escape through any leaky joints or defective apparatus and easily detected and located and made good.

Testing In Sections

Should it be more convenient to test the drainage system in sections, the smoke pipe can always be inserted through any other convenient trap and the ends and openings plugged in the length of drain under inspection.

The water test is a much more severe test than the smoke and water can be forced into the pipes after the same have been properly plugged at their outlet and inlet to any pressure desired which is usually registered by means of a pressure gauge fixed on the drain indicating the amount of water pressure the drains are withstanding. This pressure should be about ten pounds for a good and reliable test and if there is any defective work or leakage the pressure will soon

decrease and the fault be located.

This water test is best applied in sections for then the location of the defective joints or pipes is not so difficult and any part of the system can be tested separately including the soil pipe and closet connections.

Oil of Peppermint Test

The oil of peppermint test consists of discharging down the soil pipe about 2 ounces of oil of peppermint followed by a few cans of boiling water. This test relies on the discovery of leakage by smelling the escaping strong odour of peppermint so that every precaution should be taken to seal up all exits so that no smell whatever can escape except through defective construction. Owing to the strong smell of peppermint, it is always advisable that the person who handles the oil should not be the one to search for the smell of same along the drainage system, as he carries the odor about with him on his clothes and in time becomes so used to the smell of the oil that it prevents him from detecting any leakage.

Some Working Formulae

It is the desire of the writer to set forth the working of a few of the best known formulae in as lucid a manner as possible so as to enable the reader to work out accurately the desired size of any pipe to take a given quantity of sewage or water without resorting to the standard rule of thumb method of multiplying the diameter of the drain by 10.

$8 \times \text{chord of } 1/2 \text{ arc } AE - \text{chord of whole arc } AC$

$AC = 2AB \text{ and } AB = \sqrt{AD^2 - DB^2} \text{ (EUC I}^{th}\text{)}$

$$= \sqrt{4.5^2 - 1.5^2} = \sqrt{18} = 4.242$$

Therefore $AC = 4.242 \times 2 = 8.484$, chord of whole arc.

Then $AE = \sqrt{AB^2 + BE^2} = \sqrt{4.242^2 + 3^2} = \sqrt{26.994564}$

Therefore $AE = 5.195$ - chord of half arc.

$$\frac{8AE - AC}{3} = \frac{41.56 - 8.484}{3} = \frac{33.076}{3} = 11.0253$$

Wetted perimeter $AEC = 11.0253$.

Sectional area $ABCE = \text{Area of sector } ADCE - \text{area of triangle } ADC$

$$= \frac{AEC \times 1.5}{2} - \frac{49.61385}{2} - \frac{12.726}{2} = 18.443925$$

Therefore the H. M. D. or $\frac{A}{P} = \frac{18.443925}{11.0253} = 1.6728$ inches.

Dividing by 12 we get .1394 feet.

$G = \text{sine of inclination of drain, being the height of the fall divided by the length as } \frac{H}{L}$

In order to obtain the diameter of a pipe one must first calculate the velocity of the liquid of the pipe and all present day formulae for same are based on the well known V-C. V. R. S. which by some is attributed to Leslie and by others to Chezy.

V represents the velocity in feet per second or minute, C a constant arrived at by actual experiment and different authors have given widely varying values to it as: Eytelwein 93.4, Deardmore 94.2, D Aubirson 95.6, Leslie 65 to 100, Downing 100 while Leville gives first 140 and then 11 by employing the cube root.

Ganquillet and Kutters, formulae are most in favor of civil engineers but their constant is obtained by an abstruse calculation involving values of both R and S and other values obtained only in their tables or by the graphic method with the use of a chart.

R, or A, equals the hydraulic mean depth and is obtained by dividing the sectional area "A" of the liquids in the drain by the length of the wetted surface or wetted perimeter and in pipes flowing full or half full this is always taken at one-fourth of the diameter of the pipe in feet and it is very rarely the case to assume any other H.M.D. in a house drain, but if necessary it can be calculated in the following manner. Example, 9 inch pipe flowing one-third full. The wetted perimeter is first found by the following rule:—

Using Small Blowers in Furnaces

Less Fundamental Engineering Data Regarding Furnace Than Any Other Device Used for Similar Furnace Despite Its Popularity and Simple Construction.

SOME interesting data concerning the use of small blowers in combination with ordinary hot air furnaces, is given in the following being an address recently delivered by an authority before a convention of heating engineers:—

"The open fireplace is probably the oldest form of a stationary heating plant for warming buildings. As the stove can not be considered a stationary heating plant then the next oldest and by far the most generally used for domestic heating aside from the stove, is the warm air furnace. Regardless of its popularity, and the vast number of installations, as well as the simplicity of its construction and operation and the many years it has been employed as a heating medium, there is available less fundamental engineering data regarding the furnace than any other device used for a similar purpose.

"Nobody knows definitely the range of heating capacity for any type of furnace when varying volumes of air are passing over the heating surfaces, nor the limiting ratios of heating surface to grate surface, nor the right size to make the combustion chamber for a given ratio of heating surface to grate surface, nor the most effective disposition to make of the heating surface in order to get the maximum transfer of heat to the air.

"The same lack of information about the furnace itself, applies with equal force to the velocity of the air through the ducts, flues, elbows wall boxes and registers, throughout the range of varying temperatures of air and with the varying heights of flues above the crown of the furnace; neither is anything known as to what the frictional resistance amounts to in the various parts of the furnace plant from the point of fresh air supply to the place where the warm air is discharged into the room.

"The design, construction and installation of furnaces should be an engineering proposition, just as much as any other method of heating, and it should be established on the same basis. In order to do so, the factors recited above must be separated from one another and be definitely established. This will entail a long period of experimental research, which it may take years to complete.

"Therefore, until such time as an engineer or architect has in his possession definite data which will enable him to predetermine just what he may obtain, with absolute assurance of the results, the same as he now can do when designing steam and hot water plants, he will naturally hesitate to recommend a furnace heating plant to his client, regard-

less of the fact that it can be installed more cheaply and may in some cases be more easily adaptable to the building than any other system.

"The main objection to a fan or blower has been the first cost and the cost to operate same. This has been mainly due to the fact that almost invariably the inventor has depended on the blower to handle all the air that passes over the furnace, all the time, regardless of weather conditions. When shut down, it usually became such an obstruction to the flow of air that the plant failed to do even as well as an ordinary heating plant would do, when operating simply as a gravity plant.

"What is wanted is some device that will not obstruct the flow of air when it is not in operation to any greater extent than if it had never been installed. It must be inexpensive to install; must be inexpensive to operate; must be so simple to operate that it requires nothing more than the touching of a push-button to start or stop it; must be so simple to install that it requires no engineering or mechanical skill to do it; it must be adaptable to all kinds of buildings and it must have sufficient capacity to deliver the required volume of air against the normal resistances of the average heating plant so as to heat all the rooms to an even and comfortable temperature in any weather.

"We have made an effort to produce such a device and so far as our experiments and investigations have gone, they have left us with every reason to believe that we have succeeded in perfecting a unit which will do all that could reasonably be demanded of it. Before we had completed our developments, the worst of the winter weather was past, so we have not had an opportunity to try it in as many places nor in as many different situations as we would have liked to do, to enable us to present it to you with the same assurance of its absolute dependability that we have of all of the other apparatus we make. Wherever we did install it, the results were entirely satisfactory; so much so that the people refused to have it removed after we were through with our demonstrations.

"We have charted the full range of the capacity of the new device; we know what it will do as an air moving mechan-

ism, but for want of definite and authoritative information as to the limitations of furnace capacities it becomes more or less of a cut and try proposition especially on such plants as approach at all closely to the maximum limits of the capacity of the device.

"We do not mean to imply that there ever was a furnace plant which failed completely to heat all of a building; nor do we mean to imply that all of the furnaces fail to heat some portion of a building; but we all know that there are many of them which fail to heat certain rooms under some weather conditions, or require forcing of the fire to obtain sufficient heat to give satisfactory results at times.

The device we have produced is primarily intended to relieve such conditions, though it should also prove to be a source of considerable economy when used in connection with a furnace plant that otherwise operates satisfactorily. This economy is to some extent obtained by heating the building more quickly, when the temperature has become low like the conditions, which prevail in most houses in the morning, after the furnace has been checked all night.

The greatest saving of fuel is due, however, to the ability of the device to circulate as much or more air at a low temperature as would be the maximum volume obtainable by gravity circulation at very high furnace temperatures.

"The possibilities for the sale of this or some similar device seem almost unlimited in extent. It should engender more faith in the reliability and economy of furnace heating than has heretofore been possible and by so doing should give considerable impetus to the business. It opens up an avenue to additional business for the jobbers and dealers in furnaces, who can go to nearly all of their old customers and make additional sales. If our limited experience is any criterion, a demonstration in any furnace heated house is about all that is necessary to dispose of the outfit.

"One thing to remember is this: Don't expect this little device to do anything abnormal. It has been developed with the one idea of producing constantly, the same results as can be obtained by a gravity furnace heating plant, when properly selected, when installed under the most favorable conditions and when operated in an ideal manner. Those are three factors seldom in combination in

(continued on page 24, col. 3)

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

CONTRACTS AWARDED

St. Boniface, Man.—Bank costing \$60,000 for Bank D'Hochelaga, plumbing and heating, C. D. Kirk Co., Ltd., Winnipeg.

Montreal—Additional contracts for erection of office bldg. costing \$2,000,000 for Canada Cement Co., 273 Craig St. W., are: heating and plumbing, W. G. Edge, Ltd., 116 Craig St. W.

Lakeview, Ont.—Plumbing and heating contracts for school costing \$28,360 for S. S. No. 7, Toronto Twp., are awarded to Sheppard & Abbott, 119 Harbord St., Toronto.

Archydal, Sask.—Heating contracts for school for Summerside S. D. are awarded to E. H. Montgomery, Moose Jaw.

Montreal, Que.—Plumbing and heating contracts for Sunday School costing \$45,000 for Kensington Church, Grand Ave., are placed with John Tweddle & Co., 103 Lagauchetiere St.

Toronto—Plumbing and heating contracts for warehouse costing \$40,000 for Glen Eden Securities, Ltd., 145 College St., are awarded to A. Welch & Son, Ltd., 304 Queen St. W., and W. Schulkins, 932 College St.

Victoria, B. C.—Plumbing contract for three stores costing \$30,000 for Mrs. T. Cusack, Pemberton Rd., is placed with W. R. Menzies & Co., 833 Cormorant St.

Victoria—Plumbing contracts for alterations and addition to bank costing \$45,000 for Canadian Bank of Commerce are awarded to Colbert Plumbing & Heating Co., 755 Broughton St.

Wetawaskiwin, Alta.—Plumbing contract for garage costing \$10,000 for Paulson & Anderson is placed with G. L. Gothard.

Winnipeg, Man.—Plumbing and heating contracts for alterations to restaurant costing \$125,000 for Childs Co., 200 5th Ave., New York, N. Y., U.S.A., are awarded to C. D. Kirk Co., Ltd., Winnipeg.

WATERWORKS, SEWERAGE, ETC.

Winnipeg, Man.—General contract for construction of drains and drainage for Prov. Govt. is awarded to E. W. McLean, Arlington & Alexander Sts., Winnipeg.

Courtenay, B. C.—Contract at \$30,000 for wire wound wooden pipe required for water works costing \$73,700 for Courtenay Council, is placed with Pacific Coast Pipe Co., 1551 Granville St., Vancouver.

Kingsville, Ont.—Town Council plans to make extensions and improvements to water works to cost \$15,000. R. W.

Code, Engr., 14 London St. W., Windsor, Ont.

Kingsville, Ont.—Construction of filtration is contemplated by Town Council. W. G. Long, clerk.

WATERWORKS FOR

COURTENAY, B. C.

At a special meeting of the Courtenay City Council the contract with the E. J. Ryan Contracting Company of Vancouver was signed with the City of Courtenay for the construction of a waterworks at a price of \$73,700 and 10 per cent. set aside for contingencies, the contractors to take city debentures in full payment at 77 per cent. of their face value.

The work is to commence not later than two weeks from June 25th and must be completed in four calendar months under penalty of twenty-five dollars a day in excess of that time. Under the contract, too, the E. J. Ryan Contracting Company have arranged terms with the Foundation Company so that all claims against the City are withdrawn.

Mr. Donald Cameron, who drew the plans for the waterworks for the E. J. Ryan Contracting Company, severs his connection with that company and will act as city engineer at a salary included in the contract price.

MUST DRAIN CELLARS

St. Thomas—A general appeal is being made by the health officials of the city to residents whose cellars were flooded with water recently to clean them up as soon as possible and prevent serious epidemics from developing. Citizens are also being warned against the use of well water without first boiling it, many persons having resorted to the wells on account of the muddy condition of the water in the mains.

PORT CREDIT WATERWORKS

A report on the proposed water works system for the town of Port Credit, Ont., just issued by the Citizens' Research Institute of Canada, states that, due to the acknowledged fact that the water in the majority of the wells was found to be polluted, Port Credit, on the basis of disease prevention alone, is in need of a safe, pure water supply. The lake is declared to be the most satisfactory source of supply, although even this water will require to be filtered and chemically treated to ensure safety. The Port Credit water works, advises the report should be constructed so as to meet requirements of population growth for the next 25 years.

BUSINESS CHANGES

Montreal—M. Bandler & Co., plumbers, has dissolved.

WESTERN NOTES

Drumheller, Alta.—The authorized plumbers of Drumheller, Alberta, have applied to the town council for protection due to the fact that a number of unauthorized plumbers have been making water connections in the town. The Council decided to have the town solicitor prepare a by-law covering the waterworks and general plumbing business of the town.

Drumheller, Alta.—Joe Travis has been appointed works foreman at Drumheller, Alberta, to act in the capacity of waterworks inspector and also general plumbing inspector.

CHANGE FIRM NAME

Montreal—The Presto Mfg. Co., makers of the patented "Presto" gas water heater, announce the change in the firm's name from Dominion Welding Mfg.

Using Small Blowers in Furnaces

(continued from page 24)

one plant. The device we have produced is intended to bring them into closer combination at all times and to make up for either one or perhaps two of them being deficient, or perhaps entirely missing, rather than to perform any fancy or unusual stunts. When any of the latter are to be tried out, select a blower large enough to handle all the air and drive it at a speed that will overcome every possible resistance. In no other way can such things be done.

"The time has long since passed when 'rules of thumb' methods in engineering practice will be tolerated. Everything the engineer has to deal with must have back of it definite and dependable data that he can rely upon with absolute certainty. What we have aimed to do is to produce a little, dependable inexpensive device, that can be applied to any domestic furnace either old or new and by having such a thing available it is hoped it will in some measure at least restore any lost confidence in furnaces, bolster up the minds of any 'doubting Thomases,' and at the same time fill a real want in the furnace trade."

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

NUMEROUS interesting price developments continue to add direct importance to current markets. Principally through revisions in discounts, lower prices are recorded on the following list of plumbing and steam-fitting supplies:—steel and wrought iron piping; soil pipe and fittings; standard closet outfits; radiators and boilers; wrought nipples and couplings; stove bolts; copper rivets and burrs; stove pipewire; carriage and tinn-ers rivets; and spring steel. Quotations are also reduced on one line of bolt clippers.

Recessions of this nature are of particular in-

terest at this time, in view of the probable effect of such price changes in stimulating the erection of buildings and homes during the fall season.

Other plumbing and steam-fitting products remain with unchanged quotations, but with variable conditions registering an important trend. The lower prices still remain on range boilers, with the reports of future readjustment still in evidence. The boiler tube market is dull, and price recessions are anticipated, in conjunction with the new pipe list, but the ideal weather conditions have stimulated a seasonable movement in conductor pipe, eaves-trough and corrugated sheets.

MONTREAL

MONTREAL, July 15.—Changes in prices of sundry lines and an easier tone in iron and steel products feature the markets in plumbing supplies. Stove bolts will now cost less, and rivets of all kinds, including tinn-ers' rivets, are lowered in price. Iron and steel products generally are now easier with the report of an expected announcement of reductions on the Pittsburg markets. This will cast a reflection on the local markets on many lines including iron and steel bars, galvanized and black sheets, corrugated sheets, boiler tubes and probably wrought iron and steel pipe.

Enamelled ware is little changed, continuing very unsteady, closets being now reduced to net prices which are 10 per cent. lower than formerly. Metals, both ingot and scrap, are on a very dull market at present. Eavestrough, conductor pipe and elbows continue to sell well with no changes in prices. The looked for stabilized market on range boilers has not yet materialized, prices still varying among manufacturers and jobbers. Radiators and boilers are held at discounts recently announced.

Stove Bolts 65 Per Cent Off

Montreal—

Through a revision in the discount, stove bolts now cost less. The present discount is 65 per cent off list, formerly being 62½ per cent.

No Improvement In Enamelled Ware

Montreal—

Little or no improvement is evident in the sales of enamelled ware, and business generally is now very quiet. Jobbers state they anticipate more activity in the later summer and fall months, when building construction will be more advanced to the stage where enamelled ware is required. Buying in the spring and summer months up to the present has been purely from hand to mouth and it is evident that no purchasing has been done for building now under construction, and when the actual requirements have to be met, this will stimulate sales. Prices remain unchanged at 20 and 10 per cent. off the list, with the

market continuing very unsettled. Following are list prices with the discounts noted:—

Sinks, roll rim, 18 x 30 in....	23.00
Sinks, flat rim— 1 only 2 only 3 only	
16 x 24.....	\$ 7.50 \$ 7.40 \$ 7.30
18 x 30.....	8.70 8.60 8.50
20 x 30.....	9.90 9.80 9.70
Bath tubs, roll rim, 4, 4½, 5 feet	
24 to 30 in. wide.....	51.40
Bath tubs, 5½ feet.....	57.10
Lavatories—	
17x19" Apron F139 or P4045	15.30
18x24" Apron F154 or P3845 or	
P3847.....	23.60
18x21" Apron F169 or P4205.....	17.60
17x19" Roll Rim, F241 or P4345..	12.60
Less 20/10 per cent.	

Scrap Prices Nominally Unchanged

Montreal—

Little change can be reported in the market for waste materials. Prices on all lines are nominally unchanged, and

the market remains exceptionally dull. The market reductions made in many of the metals recently has failed to bring buyers on the market, and local dealers now state that little improvement will likely be shown until the fall months at least. Following are the unchanged nominal quotations.

Waste Materials

Automobile tires....	0.75
Yellow brass.....	0.05
Red brass.....	0.03½
Light brass	0.04
Scrap zinc.....	0.03½
Lead, heavy	0.04
Lead, tea.....	0.02
Light copper.....	0.07½
Heavy copper.....	0.10½
Wrought iron, R. Rd. No. 1 per gr.	
ton.....	10 50
Malleable scrap (ton).....	10.50
Pipe scrap (ton)	7 00
Heavy melting steel.....	6.50
No. 2 busheling.....	4.00
Boiler plate.....	0.08
Boiler plate.....	0.10
No. 1 machinery cast.....	22.50

Cement Prices Hold

Montreal—

Prices on Portland cement are holding unchanged, although revisions to lower levels were expected from some quarters. With a recent reduction made in other lines of building materials, it is felt that a substantial decline in cement prices would act as a stimulus to building construction, notwithstanding the advancing season. Following are local quotations:—

Car Load Lots—	
400 to 1000 bag cars—	
Per bag.....	1 03½
Per barrel.....	4 14
Less Car Lots—	
Per bag.....	1 14
Per barrel.....	4 56
Rebate 20 cents for empty bags, F.O.B.	
Montreal.	

Tinners' Rivets Now Lower In Price

Montreal—

Tinners' rivets, carriage rivets and all small iron rivets will now cost less, the new discount being 45 per cent off list.

Cotton Waste Prices Unchanged

Montreal—

Quotations on cotton wastes continue at the reduction of a few weeks ago. While prices on many other cotton goods have recently shown reduction and were made since the lowering of waste prices, dealers state they do not expect a further decline for the present, but rather are anticipating a fairly steady market. Sales are fair, considering the present season of the year.

Good Sales of Corrugated

Montreal—

Price quotations on corrugated sheets remain unchanged. The demand for sheets has been very satisfactory in recent weeks and although a slight slackening usually takes place at this time of the year, this has not been the case up to the present.

Eavetrough In Good Demand

Montreal—

A good demand continues for conductor pipe, eavetrough and conductor elbows. The open weather, although very warm, offers a good opportunity to the outside dealers to lay the requirements for these for their customers. Restricted sales in the earlier months is also accountable for the active movement at present. Price quotations remain at the discount level announced in former issues.

Boilers Held At Reduction

Montreal—

Hot water and steam boilers, also radiators remain at the reduced figures shown in our last issue of Sanitary Engineer. While it is yet early to determine whether these lower costs will act as a stimulus to buying, dealers are of the opinion that no increased activity will be shown as the buying to-day is very limited, and only as requirements call for. Building construction, which is a great factor in the sales of these lines has had very little improving effect on them up to the present and it is felt that the later summer months will show more activity as buildings now being completed will necessitate buying. Following are the prices and discounts:—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square ft. 45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 56 per cent for hot water and 57 per cent for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 53 per cent.

Boilers—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 60 per cent off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings 5 per cent.

Square or sectional water boilers 19-in to 36-in., 10 per cent off list.

Square or sectional steam boilers, 19 in. to 36 in., 10 per cent. Ontario Government trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines, Brantford, London, Windsor, Sarnia, Amherstburg, Walkerville, Sandwich, Ottawa, Hull.

Bolt Clipper Price Revised

Montreal—

The revised lower price on the New Easy bolt clipper brings the quotations to plus 5 per cent.

Soil Pipe Trade Only Fair

Montreal—

Discounts on soil pipe and fittings remain unchanged. Business in these commodities has slackened considerably in the past few weeks, the summer season being now at hand.

Closet Prices Vary

Montreal—

As in the case of enamelled ware, closets show no improvement in recent weeks, neither in the sales nor market conditions. Trade is very quiet and prices vary among the different jobbing houses. Quotations below are now net, the 10 per cent. reduction being deducted where formerly the higher prices with the 10 per cent. was given below. These prices are more or less general but some firms quote slightly better prices, especially for quantity buying.

Closet, standard outfit.....28 80
Do., with post hinge seat.....29 70
Do., white vitro, vitreous china or enameled iron, with wash down bowl and oak or mahogany post hinge seat.....31 50
Do., add for reversible trap bowl.....1.25
Do., add for syphon jet bowl.....7.00
Do., for 3/4 in. valve on supply pipe.....1.50
Do., deduct for supply pipe.....0.80
Do., deduct for floor flange.....0.60
Do., wash-down bowl less spud.....11.50
Do., reversible trap bowl, less spud.....12.75
Do., syphon jet bowl, less spud.....19.00
Do., "Richilieu" bowl.....10.50
Do., extra for spud.....0.60
Do., oak, or oak-vitro tank, with fittings, less seat.....17.50
Do., wood strip seat and cover.....3.75
Do., post hinge seat and cover.....4.75
Do., add for bar hinge.....0.25
Do., white vitro, vitreous china, or enameled iron tank, with fittings flush elbow and supplies less seat.....19.00
Loss 10 per cent.

Fair Sales Of Pipe Fittings

Montreal—

Discounts on all lines of pipe fittings held, with sales recorded fair for the present season. The movement of pipe fittings has been very satisfactory in recent weeks and although there is a present slight lull, dealers state this is expected at the present period.

Dull Market For Boiler Tubes

Montreal—

The current boiler tube market is still very dull, and while these, with many other lines of iron steel, are now said to be easier due to developments anticipated on the Pittsburg market, dealers are still of the opinion that lower prices will not offer a stimulus to buying. Local quotations are unchanged as follows:—

Boiler Tubes—	Seamless	Lapweld
1 inch.....	26.00	25.00
1 1/4 inch.....	27.25	26.00
1 1/2 inch.....	26.25	27.00
1 3/4 inch.....	29.75	25.00
2 inch.....	29.25	22.00
2 1/4 inch.....	33.00	25.00
2 1/2 inch.....	41.75	27.00
3 inch.....	49.25	35.00
3 1/2 inch.....	63.50	40.00
4 inch.....	85.00	50.25

Easier Tendency on Iron and Steel

Montreal—

While current prices on bar irons and steels have been reported easier for the past two weeks, more indications now exist that lower prices will be reached in the near future although no definite changes have been made. Dealers now fully anticipate reduced figures from the Pittsburg mills, but whether these will be announced in the near future or the next few days, cannot be stated. It is noted that some of the mills have lowered their prices and all that is necessary for a general announcement is the remainder to fall in line. Local current quotations are unchanged so far as follows:—

Common bar iron, 100 lbs.....	3 70
Refined iron.....	5 20
Iron finish machinery steel.....	3 75
Mild Steel.....	3 70
Single reeled machinery steel....	5 75
Band steel.....	3 70
Spring steel.....	5 00
Sleghshoe steel.....	3.70
Tire steel.....	3 90
Toe calk steel.....	4 60
Harrow tooth steel.....	3 85
Mining tooth steel, per lb.....	0 23
Black Diamond tool and cast steel per lb.....	0 23

NOTE—Regned iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles 50c. per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Range Boilers Still Unsettled

Montreal—

Prices on range boilers show no change and with manufacturers and jobbers expecting a readjustment to higher levels comes the report that the market is far from stabilized, and even lower prices are obtainable. A settlement is hoped for and expected in the near future by dealers generally. Following are unchanged quotations:—

Range Boilers—	Standard	Ex. heavy
30 gallon.....	8 75	11 25
35 gallon.....	11 25	...
40 gallon.....	13 50	16 00
52 gallon.....	20 00	...
66 gallon.....	28 00	...
82 gallon.....	35 00	...
100 gallon.....	45 00	...
120 gallon.....	54 00	...

Lead Products Remain Unchanged

Montreal—

No change can be reported in lead products, sales being lessened somewhat in the past few weeks, and metals chief in the manufacture of these products, very dull on the primary markets with no changes of importance in prices. Following are quotations:—

Lead pipe, per 100 lbs.....	12 50
Lead waste, per 100 lbs.....	13 50

NOTE.—Lead pipe is subject to a discount of 10 p.c.

Lead traps and bends	10 p.c. off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼ c lb. extra and cut sheets to size ¾ c lb extra	
Solder, guaranteed, lb.	0 29½
Do., strictly, lb.	0 27½
Do., commercial, lb.	0 24½
Do., wiping, lb.	0 25½
Do., wire, lb.	0 37½
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

Sheets Again Easier

Montreal—

In line with iron and steel products generally, sheet prices are again easier, although a slight revision to lower levels was made only a few weeks ago. Pittsburg markets are still unsettled, and an announcement of lower prices is expected by local dealers in the near future. Sheets have been more or less unsettled on the market for some time, prices being nominal and necessitating a range to be continually quoted. Whether a further reduction in general would stabilize the market is hard to determine. Dullness continues an outstanding feature in sheets, but with the later summer months approaching such lines as tin plate and Canada plate should show more activity owing to the commencement of furnace work and the making of stove pipes. Following are local prices:—

Black Sheets—

10 gauge.	5.00 to 6.00
12 gauge.	5.05 to 6.05
14 gauge.	5.35 to 6.35
16 gauge.	5.45 to 6.45
18-20 gauge.	5.80 to 6.80
22-24 gauge.	5.85 to 6.85
26 gauge.	6.00 to 7.00
28 gauge.	6.10 to 7.10
Sheets 36 in. wide, 20 cents per 100 lbs. extra.	

Canada Plates—

Dull	
18x24 X 52s.	7 25 box
18x24 X 60s.	7.35
18x24 X 75s.	7.45
Galvanized Sheets—	
U. S. Standard	
10¾ oz.	3.00 to 9.00
28 gauge.	7.50 to 8.50
26 gauge.	7.25 to 8.25
22-24 gauge.	7.00 to 8.00
20 gauge.	6.75 to 7.75
18 gauge.	6.75 to 7.75
16 gauge.	6.75 to 7.75
14 gauge.	6.75 to 7.75
12 gauge.	6.75 to 7.75
10 gauge.	6.75 to 7.75
English Standard—	
Queen's Head	
28 gauge.	10.00 9.25
26 gauge.	9.75 9.00
24 gauge.	9.15 8.60
22 gauge.	8.80 8.15
18-20 gauge.	8.10 8.00

NOTE.—These prices are for full bundles an extra charge of 25 to 35c per 100 pounds is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

Bright Tin Plates—

20x28 X 100 lb. basis.	18.00 box
20x28 IC 112s.	18.50
20x28 IX 112s.	20.50
20x28 IXX 56s.	11.75
20x28 IXXX 56s.	12.50
Terne Plates—	
20x28 IC 112s.	17.50 box

Little Change In Ingots

Montreal—

Very little change is noted in the ingot metal markets, all remaining dull. No change in quotations is noted with the exception of tin, which is again a little easier and the price lowered ½ cent. The summer dullness is expected to continue for some time but Fall should bring much improvement, especially with better conditions in the outside markets.

TORONTO

TORONTO, July 15.—Sharp revisions bring quotations on numerous plumbing and steam-fitting supplies to reduced levels.

Prominent among these recessions is the new pipe list superseding No. 51, which has been in effect since April. Lower quotations on wrought nipples and couplings also feature the current markets, while other price reductions include, carriage and tinnery rivets; stove pipe wire; copper rivets and burrs; soil pipe and fittings; stove bolts; standard closet outfits; and spring steel.

Recent declines on radiators and boilers constitute the third recession noted on these products during the last six months. Revised prices are looked for on boiler tubes, consequent upon the lowering of steel and wrought piping. Range boiler quotations remain unchanged, with a slight unsettlement recorded in enamelled ware conditions.

Quotations On Stove Pipe Wire Again Lowered

Toronto.

A further reduction has been announced in prices on stove pipe wire. The extent of the lower quotation is 25 cents per 100 lbs. The revisions are as follows:—

Stove Pipe Wire—

No. 18 ga.	\$9.25 per cwt.
No. 19 ga.	\$9.50 per cwt.

New Price On Boiler Rivets

Toronto.

A new base price is now announced on round head boiler rivets. The revised quotations is \$6.00 f.o.b. Montreal, Toronto, and London.

Enamelled Ware Movement Better Than Expected

Toronto.

While enamelled ware prices remain nominally unchanged, yet a slight tendency to unsettlement is recorded in local conditions.

No marked development has been reported, however, the current movement being generally quoted as better than was anticipated earlier in the year.

Enamelled Iron Baths, 3" roll rim

4 ft. 6 in. 5 ft.	\$51 40
Do., 5½ feet	57 10
All Steel Enamel Bath, 4, 4½ or 5 ft., net	16 25
Do., do., 5½ ft., net	17 50

Lavatories—

17x10" Apron F139 or P40445.	15 30
18x24" Apron F154, P3845 or P3847	23 60
18x21" Apron F169 or P4205.	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim— 3 only 2 only 1 only	
16 x 24.	\$7 60 \$7 70 \$7 80
18 x 30.	8 50 8 60 8 70
20 x 30.	9 70 9 80 9 90

All above list except lines marked net. Discount 20-10 p.c. off these prices.

Reduced Quotations On Copper Rivets and Burrs

Toronto.

Reductions are now announced on copper rivets and burrs. The revised discounts bringing quotations to lower levels are as follows:—

Copper Rivets and Burrs—

Copper Rivets.	List less 32%
Copper Burrs up to one-third of combined weight of Copper Rivets and Copper Burrs.	List less 32½%
Copper Burrs in excess of one-third of combined weight of Copper Rivets and Copper Burrs.	List plus 10%
Copper burrs only.	List plus 10%

Tinners Rivet Prices, Reduced

Toronto—

Through a revision in the discounts, lower prices are now in effect on carriage and tinnery rivets.

The new discount is 45 per cent, applying on sizes 7-16 inches and under.

Stove Bolt Prices Lower

Toronto—

Price declines announced this week include revised discounts on stove bolts. The new quotation is 65 per cent, compared with the previous discount of 62½.

Closet Quotations Lowered

Toronto—

Further reductions are again being quoted on closet outfit prices. The revised level however is only slightly lower than prices previously prevailing and it is reported that the new changes have not yet been generally adopted. Various reports are being quoted in the trade, as to conditions now governing these products, an unsettled feeling being noted in one quarter as regards prices, while a fairly satisfactory tone is also reported governing the present volume of business. It is stated that the revised quotations are expected to be generally recognized, and following is the new list:—

Closets

Closet, standard outfit cask.	\$26.00
Do., with post hinge seat.	26.75
Do., mahogany vitro or Pussyfoot with mahogany post hinge seat and cover.	29.00
Do., vitreous china with oak or	

mahogany post hinge seat and cover.....	29.75
Do., white, vitro or Pussyfoot with mahogany post hinge seat and cover.....	29.75
Do., white, vitro or Pussyfoot with cak post hinge seat and cover..	29.50
Do., enamelled iron tank with oak or mahogany post hinge seat and cover.....	29.50
Do., add for reversible trap bowl	1 25
Do., add for syphon jet bowl....	7 00
Do., for 3/8 in. valve on supply pipe	1 50
Do., deduct for supply pipe....	0 80
Do., deduct for floor flange....	0 60
Do., wash-down bowl less spud..	11 50
Do., reversible trap bowl less spud	12 75
Do., syphon jet-bowl less spud..	19 00
Do., "Richilieu" bowl	10 50
Do., oak, oak-vitro or pussyfoot tank with fittings, less seat...	16 50
Do., white, vitro, pussyfoot, vitreous china or enamelled iron tank with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover..	3 75
Do., post hinge seat and cover..	4 75
Do., add for bar hinge.....	0 40

Reduced Quotations On Soil Pipe and Fittings

Toronto—

Through a revision in the discounts, reductions of a fairly substantial nature are now shown on prices of soil pipe and fittings. The 2 and 3 inch pipe registers a decline of approximately 17 per cent. with other sizes in varying proportion. Discounts on fittings are also changed. The steady volume of home building now prevalent in the city suburbs and in the larger towns generally, is reflected in the increased number of small sales. Seasonable activity of this nature is now reported to be in full swing and with the reductions in quotations prevailing an improvement is looked for in the current movement of soil pipe and fittings. Following are the revised discounts:—

Soil Pipe—

- 2 and 3 inch, 25%.
- 4 inch, 30%
- 5 and 6 inch, 30%
- 8 inch, net.

Fittings—

- 2 to 6 inch fittings 40-10%
- 8 inch fittings net.

Revised Discounts Lower Pipe Fitting Prices

Toronto—

Following the reduction in the price list of wrought piping, quotations on wrought nipples and couplings are now on a lower level. A revision in the discounts on these products, shows reductions of approximately 10 per cent.. Prevailing conditions in the pipe fitting market, generally indicate that merchants are adhering to the principle of ordering in small quantities. The total volume of purchases, however, is reported as showing a steady average from month to month. With the decline in prices, all tending to effect a reduction in building costs the anticipation of an improvement in the future demand for fittings now prevails in certain quarters. Following are the new discounts:—

PIPE FITTINGS

Cast iron fittings	20 p.c.
Plugs, cast iron	27½ p.c.

Do., solid	10 p.c.
Do., countersunk	net
Bushings	30 p.c.
Unions, 1-4 in. to 2-in.	40 p.c.
Do., 1-8 in., 2 1-2 to 4 in.	35 p.c.
Dart Unions, blk., 1-4 to 2in ..	29 p.c.
12 inch.....	8.78
Do., 1/8 in., 2 1/2 in. to 4 in.....	14 p.c.
Do., galvd., add to black	30 p.c.
Wrought Nipples—	
Close and short, 4" and under	45 p.c.
Do., 4 1/2 and larger.....	35 p.c.
Long 4" and under.....	55 p.c.
Do., 4 1/2 and larger.....	45 p.c.
Running thread 4" and under.....	25 p.c.
Do., 4 1/2" and larger.....	45 p.c.
Wrought Couplings—	
Standard 4" and under.....	25 p.c.
Do., 4 1/2" and larger.....	35 p.c.

MALLEABLE FITTINGS

	Black	Galvanized
Class A	0 60	0 75
Class B	0 24	0 34
Class C	0 15	0 24

New List On Piping

Toronto—

A new list on piping is now being issued. Following the downward tendency recently evident on steel bars sheets and plates and on various steel products, prices on tubular goods are reflecting the easier market tone. The previous list, No. 51 is now superseded, the revisions being effective July 11th. Following is the new list:—

Price List No. 52 July 11 1921 Standard Butterweld Pipe S-C

Size	Per 100 feet			
	Steel		Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
1/8 in..	\$ 6 50	\$ 8 50	\$	\$
1/4 in..	4 56	6 60	5 76	7 80
3/8 in..	4 56	6 60	5 76	7 80
1/2 in..	5 87	7 40	7 65	9 10
3/4 in..	7 02	8 97	9 55	11 50
1 in..	10 03	12 92	13 77	16 66
1-1/4 in..	13 57	17 48	18 63	22 54
1-1/2 in..	16 23	20 90	22 28	26 95
2 in..	21 83	28 12	29 97	36 26
2-1/2 in..	34 52	44 46		
3 in..	45 14	58 14		
3-1/2 in..	59 80	75 44		
4 in..	70 85	89 38		

Standard Lapweld Pipe S-C

Size	Per 100 feet.			
	Steel		Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in..	\$25 53	\$31 82	\$33 67	\$39 96
2-1/2 in..	38 03	47 97	50 90	60 84
3 in..	49 73	62 73	66 56	79 56
3-1/2 in..	60 72	76 36	80 96	96 60
4 in..	71 94	90 47	95 92	114 45
4-1/2 in..	81 28	102 87	1 12	1 33
5 in..	94 71	119 88	1 30	1 55
6 in..	1 23	1 56	1 69	2 02
7 in..	1 64	2 09	2 21	2 63
8 L in..	1 73	2 20	2 33	2 75
8 in..	1 99	2 53	2 68	3 17
9 in..	2 38	3 04	3 21	3 80
10 L in..	2 21	2 82	2 98	3 52
10 in..	2 84	3 63	3 83	4 53

Discounts Again Revised On Radiators and Boilers

Toronto—

Further reductions are now announced in prices on radiators, which change constitutes the third recession in these quotations recorded this year. The revision in the discounts, brings the new prices to a lower level.

Similar reductions of approximately 10 per cent. are evident in the quotations on both water and steam boilers.

Manufacturers state that in making the current changes, they have taken into account not only prevailing lower material costs, but have anticipated to some extent a future lowering in production levels.

Following are the revised discounts:—

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in. \$1; 21 in. \$1.10; 30 in. \$1.15;
26 in. \$1.20; 23 in. \$1.26; 22 in. \$1.30;
20 in. \$1.36; 18 in. \$1.40; 16 in. \$1.50;
14 in. \$1.55; 13 in. \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 56 per cent for water and 57 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent for water and 49 per cent for steam.

Discounts on 1-column hospital size, water 30 per cent; steam 31 per cent.

Wall Radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 53 per cent.

BOILERS—

Water:

Round.....	60% off list
Square.....	10% off list

Steam:

Round.....	15% off list
Square.....	5% off list

Spring Steel Prices Lower

Toronto—

A slight increase in the number of inquiries for steel has been reported, but only a proportion of these have developed into new business. Many of such inquiries are generally calculated as movements to sound out the market tone and the buying prices. The quiet period, therefore, is stated as continuing with the recent announcement of price recessions on the primary steel markets being reflected in local circles by one or two gradual reductions. Last week, both band and hoop steel quotations were lowered and reduced prices are now recorded on spring steel. Other quotations remain generally unchanged as follows:—

STEEL AND IRON—

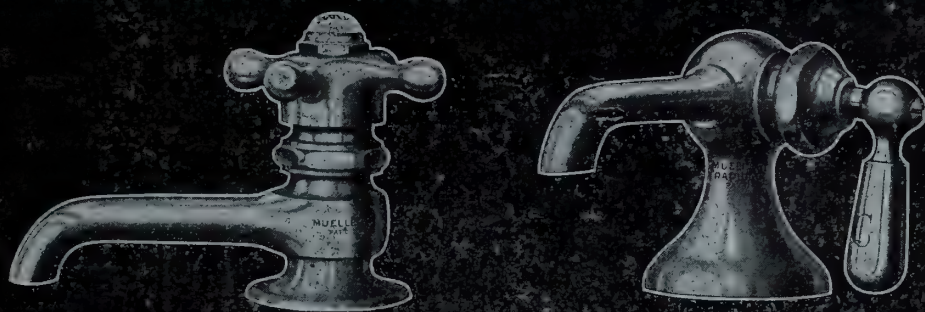
Mild Steel 3-16 in.	\$4.40
Do., 1/4 and heavier.....	3.75
Bar iron 3-16 in.	4.10
Do., 1/4 in. and heavier	3.75
Angle base.....	3.75
Horseshoe iron.....	4.10
Tire Steel.....	4.70 to 5.95
Band Steel 5-8 to 4 in.	4.25
Spring steel.....	9.50 to 11.50
Crucible cast sheet steel ..	30.00 to 35.00
Mining drill steel.....	20.00 to 23.00
Cast tool steel, medium.....	20.00
Cast tool steel high grade ..	30.00 to 36.00
Sleigh shoe steel.....	4.10 to 4.50
Norway iron.....	15.00
Toe caulk iron.....	5.40 to 6.40
Hoop steel.....	4.75

Steady Sales Recorded In Compression Work

Toronto—

There has been no recent change of importance in the current situation on compression work. Sales are reported of a steady nature with seasonable business evident in small orders. The recent revisions in the various discounts are still holding, the following being the unchanged quotations:—

Compression work, standard	37 p.c.
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MUELLER Bath Cocks and Basin Cocks

In Rapidac, Self-Closing and Compression Construction

The most important part of any plumbing job is the brass goods. Unless they are right, the whole job will be a disappointment to you and to your customers.

MUELLER Bath Cocks and Basin Cocks are right in design, right in manufacture, and right in finish—there is no higher standard in brass goods than those that bear the name MUELLER. Styles A-1500 and A-1400 above, and Styles A-2389 and A-2385 below.

Use MUELLER Brass Goods throughout on every job and insure dependable service and lasting satisfaction.

Write for catalog and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., Limited, SARNIA, ONT.

WATER, PLUMBING AND GAS BRASS GOODS AND TOOLS.

American Factory at Decatur, Ill., U.S.A. Branches, New York and San Francisco
Mueller Metals Co. Pt. Huron, Mich. Makers of "Red Tip" Brass Red; Brass and Copper
Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White
Metal and Aluminum; also Screw Machined Products.



Fuller work, standard	30 p.c.
Bath cocks, compression	29 p.c.
Do., Fuller	25 p.c.
Flatway stop and waste cocks, standard	40 p.c.
Roundway stop and waste cocks, standard	34 p.c.
Brass steam cocks, standard....	10 p.c.
Globe, angle and check valves, standard	5 p.c.
J. M. T.	20 p.c.
J. M. T. C.	25 p.c.
J. M. T. Gate Valves	15 p.c.
Gate or straightway	16 10 p.c.
Jenkins Globe	10 10 p.c.
Radiator valves, standard	30 p.c.
Do., removable disc	42 p.c.
Basin Cocks—	
No. 1 and 1 Fuller pattern.....	30 p.c.
Quick opening, No. 3633	37 p.c.
Emco J. D. Valves	20 p.c.
Emco Check Valves	20 p.c.
Webber Gate Valves	20 p.c.

Revised Sheet Prices Bring More Inquiries

Toronto—

Quotations on sheets and plates remain generally unchanged this week with merchants awaiting the results of the recent price revisions. Whether business will respond to these more attractive levels, is considered contingent upon the degree of business activity, but it is stated that any worthwhile reduction is likely to uncover buyers. The formal announcement of a lower scale of steel prices recently made by the Bethlehem Steel Company, has not directly affected local conditions due to the fact that such nominal recessions were only in reality bringing the official prices down to levels which were already in existence on the primary markets. The chief object in such a formality is stated as being a desire on the part of the steel mills to relieve the industry generally from the appearance of securing higher prices than were really being obtained. No new development has been recorded this week in sheets and plates, the prevailing tendency being an abnormal proportion of inquiries compared with the current volume of business. Prices continue to show a range but the following quotations cover the average figures for fairly large quantities:—

Plates—

10 gauge.....	4.75 to	5.00
12 gauge.....	4.80 to	5.05
14 gauge.....	4.85 to	5.10
16 gauge.....	4.95 to	5.20

Black Sheets—

14 gauge	5 10 to	5 60
16 gauge	5 20 to	5 70
18-20 gauge	5 30 to	5 80
22-24 gauge	5 35 to	5 85
26 gauge	5 40 to	5 90
28 gauge	5 50 to	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 36 in. wide.

GALVANIZED SHEETS—

Premier and Apollo		
10% oz.	7 90	8 40
U.S. 28	7 50	8 00
U.S. 26	7 20	7 70
22 and 24	7 05	7 55
18 and 20	6 90	7 40
16	6 75	7 30
12 and 14....	6 60	7 20

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charged on galvanized sheets, 10% oz., and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Copper and Brass Prices Remain Unchanged

Toronto—

While prices on copper and brass have recorded a slight reduction on the United States markets, local quotations remain unchanged. It is reported that the decrease referred to has not been reflected locally as yet owing to variable conditions in the trade. The current condition of the market shows the jobbing trade falling off considerably with the average volume of business stated as small. The general situation is by no means considered any worse than during recent weeks, however and the revised prices are maintained as follows:

BRASS

Sheets, base, per lb.	\$ 0 27
Rods, base, per pound	0 27
Tubing, base, per lb.	0 34

COPPER

Rods, base, per pound	0 32
Soft sheets, plain, 16 oz. and heavier, lb.	0 32
Do., plain tinned 16-oz. and heavier, lb.	0 40
Do., polished and tinned 16-oz. and heavier, lb.	0 45
Tubing	0 37

Seasonable Sales Recorded in Conductor Pipe

Toronto—

Recent ideal weather conditions have stimulated a seasonable movement in eavestrough, conductor pipe and conductor elbows. Small building activity is steadily showing to advantage and brighter prospects are now evident as regards the prospective total volume of business for the year. A more optimistic tone prevails and orders are reported fairly satisfactory. Prices are held unchanged with the following discounts being quoted:—

TROUGH (Eave)

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	\$ 15 90
10 in.	17 70
12 in.	21 20
Less 60 per cent.	
15 in.	28 80
18 in.	36 50

PIPE (Conductor)

Plain, round or corrugated	
	Per 100 ft. in 10 ft. lengths
2 in., in 10-ft. lengths, list.....	18 40
3 in., in 10-ft. lengths, list.....	22 30
4 in., in 10-ft. lengths, list.....	29 60
5 in., in 10-ft. lengths, list.....	40 00
6 in., in 10 ft. lengths, list.....	49 00
Less 60 per cent.	

CONDUCTOR ELBOWS

2 inch, list	5 25
3 inch, list	6.00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

Boiler Tube Movement Reported Light

Toronto—

Current sales of boiler tubes are reported as very light and the dull tone recently recorded still remains. Only small repair work is now being carried out, and little market activity has been noted. It is considered problematical whether any future price revisions would tend to stimulate activity but the recent general reductions in prices on steel and iron, sheets and plates, and certain steel products has evidently led to the impression that future recessions in quotations on boiler tubes are generally possible. No official announcement to the effect has as yet been issued, however, either locally or in the United States markets. Following are the unchanged prices:—

BOILER TUBES

	Seamless	Lapweld
1 inch	\$26 00	\$
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch	29 25	22 00
2¼ inch	33 00	25 00
2½ inch	41 75	27 00
3 inch	49 25	35 00
3½ inch	63 50	40 00
4 inch	85 00	50 25

Range Boiler Quotations Still At Lower List

Toronto—

Although a few wholesalers are reported to be nominally maintaining prices on range boilers somewhat in advance of the lower list recently recorded, the variation is not so marked as previously, and a more general levelling is recorded. It is noticeable that the price readjustment has not yet been announced, and range boilers are still selling at the reduced quotations which were arrived at early in June, owing to price-cutting activities. The 30-gallon boiler continues to be the popular size, with little movement recorded in other sizes. Following is the unchanged list:—

RANGE BOILERS

	Standard	Ex-heavy
30 gallon	\$ 8 75	\$11 50
35 gallon	9 50	13 80
40 gallon	13 80	16 50
52 gallon	20 40	25 20
66 gallon	28 30	34 80
82 gallon	36 00	47 40
100 gallon	45 60	56 40
120 gallon	55 20	64 80
144 gallon	78 00	93 00

Firmer Tone Recorded In Primary Lead Markets

Toronto—

Little variation has been recorded in the local market tendencies on lead and zinc goods, although a stronger tone is now reported on the primary markets. Quotations on lead products are holding unchanged with solder prices maintained at recent revisions. The current movement is considered fair, the demand having been of a steady nature during recent weeks. Following are prevailing quotations:—

LEAD AND ZINC GOODS

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb. ...	0 13½
Do., over 8 in., list, per lb. ...	0 14½
Lead pipe is subject to a discount of	
Lead traps and bends.....	10 p.c.
Lead sheets, 4 to 6 lbs. sq. ft. in	10 p.c.

**MADE
IN CANADA**

MALLEABLE AND CAST IRON PIPE FITTINGS

**Annual Capacity
6000 Tons**

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
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Halifax—GEO. D. HATFIELD, Bedford Chambers Winnipeg—HARRY F. MOULDEN, Confederation Life Building
St. John, N.B.—H. G. ROGERS, 147 Prince William St. Vancouver, B.C.—CYRIL AMES, Wilton Block
Montreal and Toronto—From Head Office, Guelph, Ont.

rolls, lb.	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size 1 ct. lb. extra.	
Solder, wire, per lb.	0 32
Do., strictly, lb.	0 23
Do., commercial, lb.	0 21
Do., guaranteed, lb.	0 26
Do., wiping, lb.	0 20½
Zinc sheets, per lb.	0 13

Corrugated Sheets Sales In Seasonable Volume

Toronto—

The advent of warm weather has seen a steady increase in the total volume of small building especially in the larger towns and city suburbs. This situation has reflected somewhat in the current sales of corrugated sheets, and a fair volume of sales is recorded. The movement corresponds with the current activity shown in various building products and dealers state that business in corrugated sheets has been fairly good during recent weeks. Following are unchanged quotations:—

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge	13 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 7½ p. c	
Lighter than 24 gauge and wider than 27 inch 75c. a square extra.	

No Improvement Evident In Waste Materials

Toronto—

Conditions in the waste material markets are absolutely without any indication of improvement and it is reported that all prices quoted are purely nominal with practically no trading in sight. Steel scrap is very dull and scrap metals are in a similar position with neither a buying nor selling movement recorded. White metals are also stated to be in the same predicament. The following prices, therefore, average nominal buying quotations for fairly large quantities f.o.b. Toronto:—

WASTE MATERIALS

No. 2 bushelling	\$	\$11 00
Heavy melting steel, gross ton	11 00	12 00
R. Rd. wrought iron, No. 1, gr. ton	11 00	12 00
Scrap pipe, gr. ton	6 00	7 00
Stove plate, net ton	12 00	13 00
No. 1 machinery cast, net ton	17 00	18 00
Heavy, lead	3 75	4 25
Tea lead	2 25	2 50
Red brass		9 00
Yellow brass	6 00	7 00
Light brass	4 00	4 50
Heavy Copper	10 00	11 00
Scrap zinc	3 50	4 00
Old rubbers, boots and shoes	2 50	3 00
Lumberman's rubber boots	1 50	2 00
Auto tires	0 50	1 00
Sold tires	0 75	1 25

Trade In Ingot Metals Described As Listless

Toronto—

Conditions in the ingot metal markets are still described as listless, and very little trading has been recorded. Quotations on the local markets are nominally unchanged, but a little variation is re-

corded in conditions on the various metals, as follows.

COPPER—No immediate improvement in the copper market is looked for, but it has been pointed out that the formal reduction in prices, recently announced by various steel mills is regarded as a favorable development due to the fact that high prices on iron and steel have had their effect in retaining purchases of copper. Signs of a more optimistic tone developing are therefore apparent, but local quotations remain unchanged at 17½ cents.

TIN—The tin market has recently been quiet, with prices practically stationary. The recent reduction in quotations on tin plate had no effect as the new price had previously been in effect through independent activities. The outlook for any marked improvement is not considered bright, and consumers are not purchasing as previously. The range in local quotations of from 37 to 38 cents is still evident.

LEAD—A firmer tone has recently been recorded in the lead markets, and reports from southern centres indicate

that inquiries have been more numerous. The increase in the number of inquiries appears to be the chief factor at this time. Prices locally are still maintained at \$6.75.

SPELTER—While the dull trend still prevails in spelter conditions generally yet the opinion has been expressed that even if the present small demand shows no material improvement, the current prices are expected to remain firm. The desire to sell at any costs among producing circles, in order to move stocks at a time when there was no particular market evident for the metal is what is quoted as the cause for the recent drop in quotations. The price of \$7.00 still prevails locally.

ANTIMONY—This market is virtually at a standstill as far as demand from consumers is concerned, but current quotations are unchanged. The local price is from 8 to 10 cents.

ALUMINUM—The movement of aluminum has shown no improvement whatever but prices are being maintained at previous levels. The local quotation is unchanged at 30 cents.

PLUMBERS HAVE LIVE BASEBALL LEAGUE

Grinnell Company Lead Local Baseball League

—Now in Second Half of Season

TO prove how fast baseball is catching on, with the industrial concerns in Toronto, one has just to turn to the Toronto Plumbing and Heating Supplies Baseball League for an example. Last year the teams just used to play an odd exhibition game, but this year it is a real live organized affair, with teams representing The Grinnell Co., Dominion Radiator, Jas. Morrison Brass and the Domestic Sanitary and Heating Engineers making up the league. They have finished the first half of their schedule the closing game being June 24th, and started on the second half.

The class of ball, while not being as fast as provided in the senior amateur leagues about town, ranks very highly and has provided the fans with lots of excitement.

All the games are played at Willowvale Park on Monday night, and Perth Square on Friday night of each week.

The officers of the league are Harry Ford (Dominion Radiator), president; W. Boddington (Morrison Brass), vice-president and G. Gingras (Grinnells), sec-treas. They are all hustlers and through their untiring efforts, have made the Toronto Plumbing and Heating Supplies League one of the best industrial leagues in the city to-day.

The Grinnell team captured the first half honors, and will meet the winners of the second half for the league championship. They have a good pair of pitchers in Gingras and Ball, the latter being the pick of the two, but they are a light-hitting aggregation. Dominion Radiator gave them a close run for the honors and were the only team to defeat them, and also have in Gillen a pitcher who would look good on any of the senior teams in the city. Jas. Morrison and D.S.H.E. were right in the hunt in all the

game, and claim they will make the leaders step in the second half to beat them.

The base-stealing honors were carried off by Johnston (Grinnells), with nine thefts, and Gillen (Dominion Radiator) was a close second, with eight to his credit while Radke of Dom. Radiator was the leading batsman, with the grand percentage of .590 for six games.

D.S.H.E. lead in team batting, with a percentage of .342; Jas. Morrison second, with .337; Dom. Radiator, .335, and Grinnells, .201.

The fielding averages of the teams show Jas. Morrison first, with .873, and the rest in the following order: Dom. Radiator, .870; Grinnells, .865; D. S. H. E., .820.

The following were the best fifteen batters for the first half of the league schedule, who played in three games or more: E. Byrne (D.S.H.E.), .666; Radke (D.R.), .590; Porter (M.B.), .474; North (D.R.), .450; W. Menzie (D.S.H.E.), .444; Mortimer (M.B.), .444; Kerr (M.B.), .409; Hughes (M.B.), .400; Coffey (D.R.), .391; Donnelly (D.R.), .384; Newstead (M.B.), .375; Clifton (D.S.H.E.), .375; R. Byrne (D.S.H.E.), .363; Ramsey (D.S.H.E.), .363; Ramsey (D.S.H.E.), .357; Winnpenny (D.S.H.E.), .355.

The league standing for the first half of the schedule:

	Won	Lost	P.C.
Grinnells	5	1	.833
Dom. Radiator	4	2	.666
xMorrison Brass ...	1	4	.200
xD.S.H.E.	1	4	.200

x—Played one tie game.

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Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

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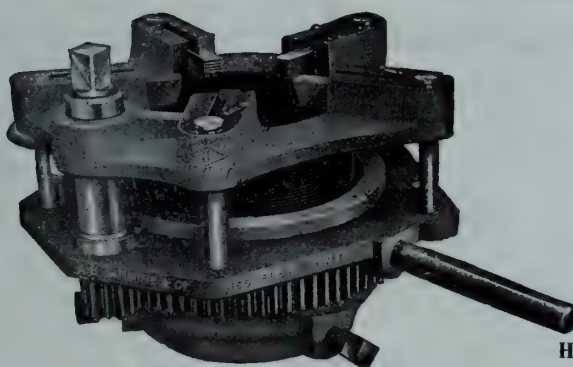
Jardine

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Toronto Agent

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"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

Toledo

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Limited

HESPELER ONTARIO

These smooth-working tools give the maximum of satisfaction in use. The dies open out as the tool advances on the thread so as to make the proper taper. This prevents friction on the pipe and leaves every ounce of power available for making the cut. The dies only cut with the mouth of the cutter.

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VICTORY RADIATORS

An improvement in engineering and design.

The Victory Radiator is made with two flat, hollow castings, one for the top and the other for the bottom, with tubes inserted in them. One tube is within the other. In this way, water is caused to circulate through the



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SAVE ON

Coal, Shipping and Handling Weight, Cost of Installation and Fittings. Further investigation proves them still more efficient. Steel tubing is thinner and gives better radiation. The air circulation is better. The radiators occupy a minimum of space. They are artistic in appearance.

Since there is only $\frac{1}{8}$ as much water in Victory Radiators, it is quickly heated, and stimulates circulation of the water, making radiators hotter and radiating more heat. A smaller furnace can be used to heat the lesser quantity of water. Write for the remainder of the advantages.

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St. Catharines, Ontario



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Wolverine Pipe Joint Cement

Pipe Joint Cement can be produced to sell at almost any price but why take a chance when a saving of a few cents a pound may mean endless trouble later.

Our cement is mixed according to our own formula and will positively make "perfect non-leaking joints."

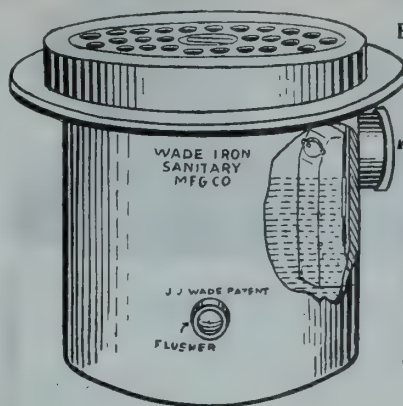
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—LIMITED—

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B Fig. 124 - Floor Drain

For Dairies and
Concrete Floors

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Floor
Drain**

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

Write for Catalog "B"

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Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor Drains and All
Descriptions of Iron or Gravel and Grease Basins.



True Economy **Stack Heater**

The Stack Gas Water Heater will heat water in one minute.

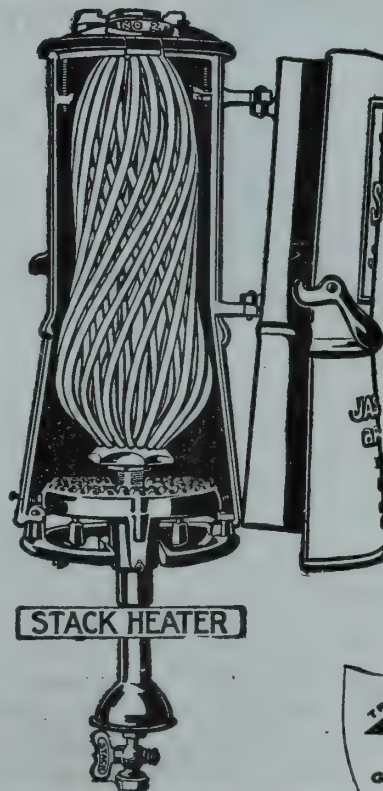
The almost perpendicular copper pipes in the Stack Heater offer no hindrance to the natural tendency of water to rise when heated.

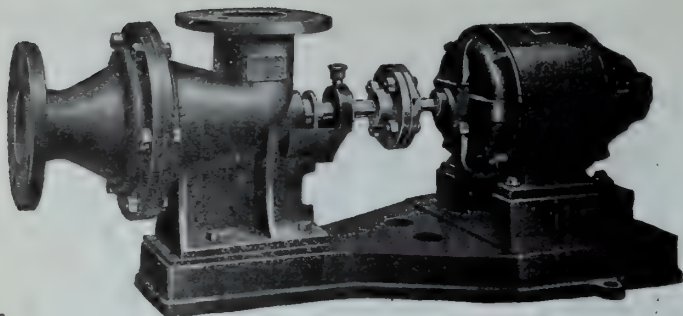
Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co. Limited
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POSITIVE CIRCULARS FOR HOT WATER HEATING

These pumps are specially designed for use on hot water heating systems and are built in four sizes to take care of radiation up to 15,000 feet. The pump consists of a cone shaped aluminum roter on a monel shaft attached to the motor shaft by a flexible coupling. Bronze bearings are used in the pump to prevent rust and seizure. The pump casing is constructed with large open spaces to allow good gravity circulation through the pump when not in use.

Write for information and prices.

We have as well a full line of centrifugal, boiler feed, condensation and vacuum pumps and will be glad to quote you on your requirements.

**The Atlas Engineering
& Machine Co.**
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Gem Automatic Air Valves

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.

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**Saves
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House
and
Lawns**

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flowerbeds, until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

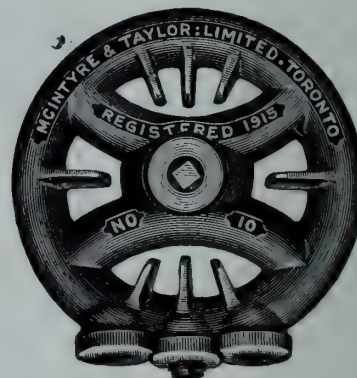
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Ask your jobber, or write us direct. We can ship on short notice from stock.

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A publication may have the circulation it claims without verification by the Audit Bureau of Circulations.

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Better be sure.

The circulation of Sanitary Engineer is verified by the A. B. C. Sanitary Engineer is the only plumbing and heating publication in Canada that will supply an A. B. C. Audit.

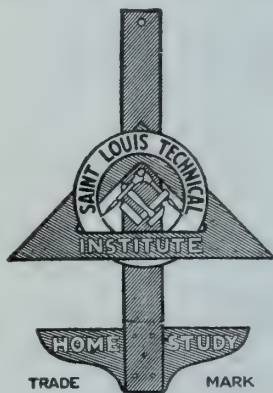
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The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



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Thoroughly Inspected

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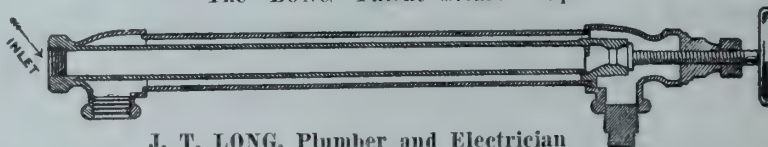
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Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

It's advantages are many
There is no possibility
of freezing if it is set so
as to drain.

Requires no valves except those which control the admission of steam to the apparatus to which the trap is attached

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J. T. LONG, Plumber and Electrician
127 4th Ave., Maisonneuve, Montreal.

Regulated to work
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Will drain from 900 to
1500 feet of one inch pipe.

Write to-day about it's
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The Advertiser likes to know where you
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Royal
AUTOMATIC
Works Quick

In an instant there is heat. It never fails to give complete satisfaction.

Always ready, takes up little room and costs little to operate.

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The price is low and where a heater is needed a mere demonstration will most times close the order.

There is a liberal profit in each sale for the dealer and it is the most profitable Heater on the market to handle.



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Hanson St. and Hillingdon Ave.
TORONTO, CANADA

INDEX TO ADVERTISERS

American Plumber Supplies.....	40
Amherst Foundry Co. ... Inside front cover	
Atlas Engineering & Machine Co., Ltd.	36
Atlas Tank Works	40
Bastian Morley Co., Ltd.	39
Beaton and Cadwell.....	36
Canada Metal Co.	11
Canadian Brass Co.	2
Can. John Wood Mfg. Co.	7
Canadian Tube & Steel Products.....	38
Chamberlain Desolve Co.	36
W. H. Cunningham & Hill Co. Ltd....	8
Dennis Wire & Iron Works Co., Ltd. ..	3
Dominion Sheet Metal Corp., Ltd.	1
Dunham Company, Limited, C. A.	5
Empire Brass Mfg. Co... Outside front cover	
Fittings, Ltd.	40
Galt Brass Co. Back Cover	
Gendron Mfg. Co., Ltd.	40
Hall Zryd Foundry Company, Ltd.	
Inside Back Cover	
Hause Mfg. Co., Chas. F.	40
Hoyt Metal Co.	38
International Malleable Iron Co.	31
Jardine & Co., A. B.	33
Jenkins Bros., Limited	9
Katie Foundry	38
Kerr Eng. Co., Ltd.	9
J. T. Long & Co.	38
Marks & Co.	40
McIntyre & Taylor, Ltd.	36
Montreal General Tool Co.	34
Morrison Brass Mfg. Co. Ltd., Jas....	35
Mueller Mfg. Co. Limited, H.	29
Presto Mfg. Co.	4
Port Hope Sanitary Mfg. Co., Ltd....	20-21
St. Louis Technical Institute.....	38
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	40
United Brass Founders & Engineers Ltd.	8
Wade Iron & Sanitary Mfg. Co.	35
Wallaceburg Brass Co.	6
Warden-King, Limited	32
Williams & Co., J. H.	34
Wolverine, Ltd.	35
Want Advt.	40

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Cor. John and Gore Sts.
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Manufacturers of
Malleable and Cast
Iron Pipe Fittings

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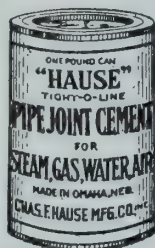
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TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

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Canadian Distributors:

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The London Engine Supplies Co., London



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Sanitary Closet
with mahogany
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The special Tweed sanitary closet used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

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Write for price lists and literature.

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Air Receivers
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All Kinds of
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etc.

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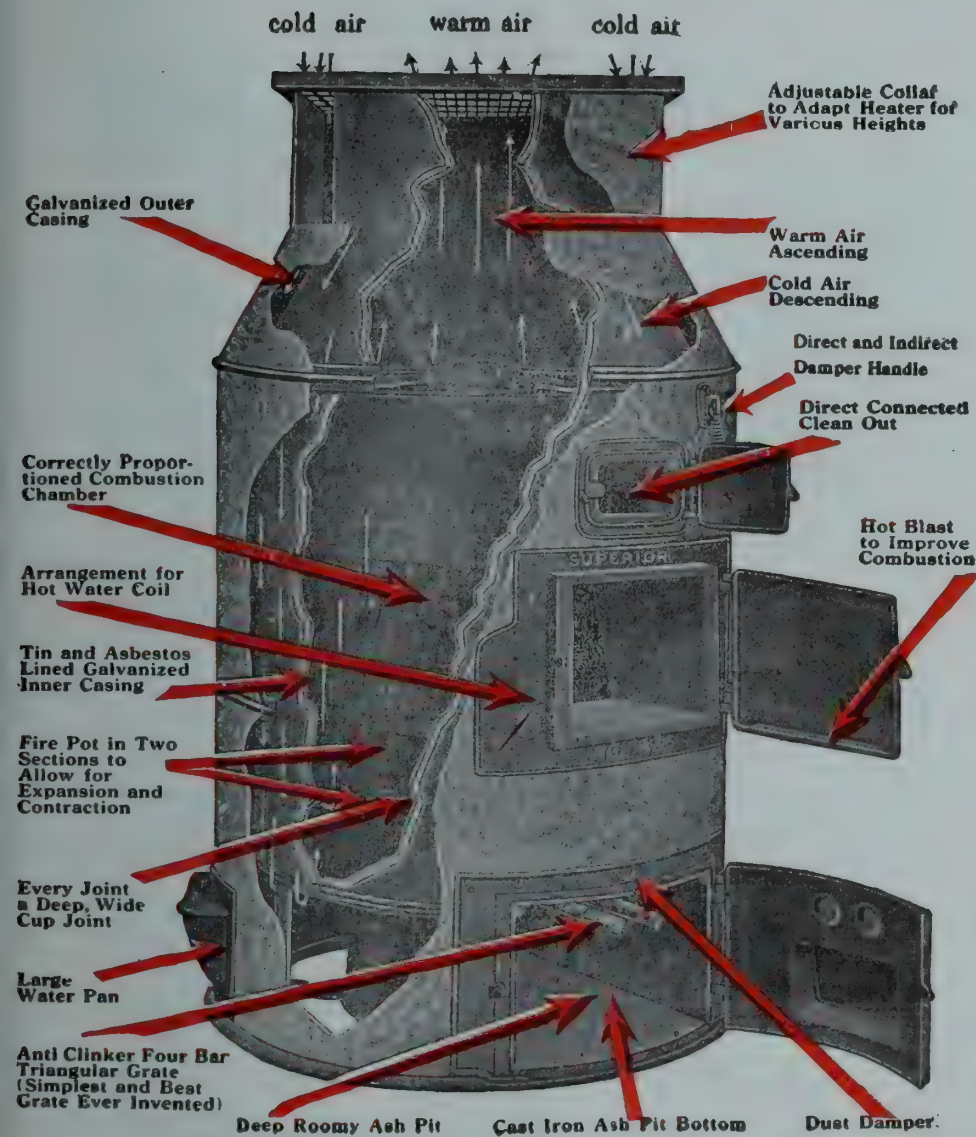
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WANTED—Traveller calling on Plumbing Trade in Northern Ontario to carry High Grade Line Plumbing Specialties and Rubber Goods as side line. Apply Box 128 Sanitary Engineer

Heat by the Shortest Route

The "PILOT" Superior Pipeless Furnace



To the Dealer :-

The Pilot Superior is the leading Pipeless furnace on the market. It was conceived before other pipeless furnaces were made in Canada and our pioneer experience in this field enables us to place in the hands of the trade the most efficient and economical heating apparatus built.

Note the red arrows shown in the illustration which describe the features of this furnace. Dealers are making handsome profits handling the Pilot Superior. It is easy to sell. One installation sells another and good businesses are being built through them all over Canada.

The Hall Zryd Foundry Company, Limited

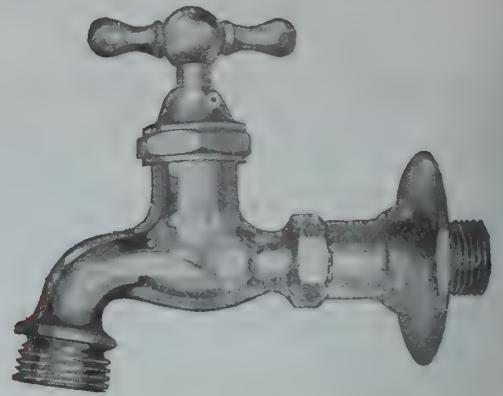
Manufacturer of Pilot Stoves, Ranges and Furnaces

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Hespeler,

Ontario

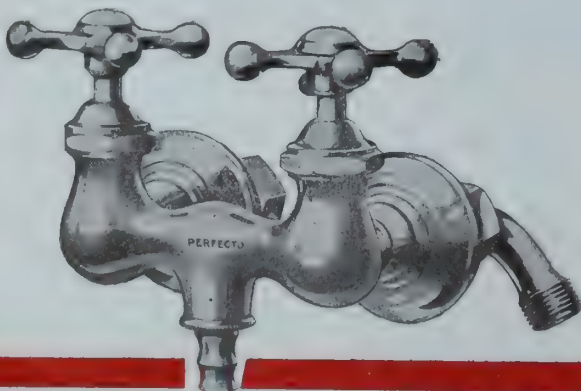
PerfectO Brass Goods



Back Them to the Limit

WHEN you install a PerfectO Bibb or Bath Cock you know there will be no "come back." You know you are selling a line of brass goods that is not surpassed on this continent, either in workmanship, material or finish. If you haven't yet proven this by experience, you can still "back them to the limit" because our "2 to 1" guarantee absolutely protects you.

There is a great satisfaction in dealing in high quality goods—and it pays. The quality of PerfectO Brass Goods helps maintain your reputation for high class work. It brings repeat orders and new business. Is it worth while putting in good time on anything but the best? Install PerfectO the line you can back to the limit.



GALT BRASS CO.

LIMITED

GALT - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV

PUBLICATION OFFICE, TORONTO, AUGUST 15th, 1921

No. 16



Empire Compression Basin Cock

PREVENTS WASTE

Our A-415 Side Handle Compression Basin Cock is gaining popularity every day.

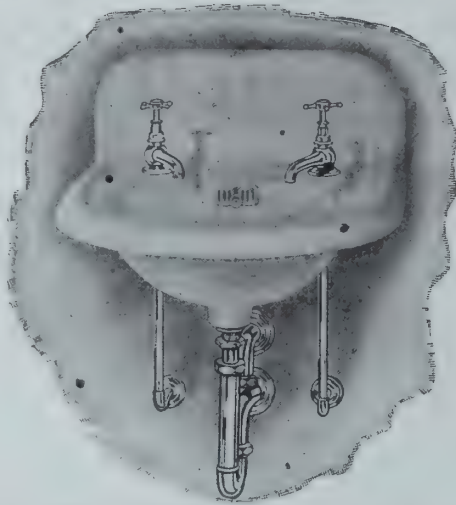
Its beauty of design and bright nickel finish make it unexcelled in appearance while the quick presson feature of its manufacture, always ensures complete shut-off.

Every Empire Compression Basin Cock you sell will bring repeat orders later. Recommend them to your clients and customers.

"If it's an Empire product you know it's right."

Write to-day for Empire Catalogue of sanitary fixtures and plumbing supplies.

EMPIRE BRASS MANUFACTURING CO., LIMITED
LONDON AND TORONTO - CANADA



One Piece Porcelain Enamel Lavatory



"Beaver" Porcelain Enamelled Bath, with 1½ inch Roll Rim, for Fuller Double Bath Cock, connected Waste and Overflow, Painted exterior.

Dimensions—Width over Rim, 25½ inches; Inside Width, 22 inches; Overflow Hole 2½ inches; Height to Top of Rim 21¾ inches; Inside Depth, 15½ inches; Supplies, 1¼ inches; Centre to Centre of Supplies, 3¾ inches.

Beaver Brand Porcelain Enamelled Ware

The "Beaver" Porcelain Enamelled, One-Piece Lavatory is illustrated above and to the left. It has D-shaped Basin, Patent Overflow and Shell Soap Dish, on concealed brackets. Complete with N. P. Overflow, Strainer, Chain Stay, Plug and Stopper.

Dimensions—Size of Lavatory 17 x 19 inches; Basin, 10 x 14 inches; Length of Back, 19 inches; Height of Back, 7 inches.

Roughing in Measurements—Centre to Centre of supplies 10 inches; Centre of Outlet to wall, 7½ inches; Centre of Supplies to Wall, 3 inches.

"Beaver" Porcelain Enamelled 2-Section Laundry Tub with Roll Rim, cast in one piece, with separate Enamelled Recessed Back, on painted Iron Legs. Complete with Wringer Holder, N. P. Soap Dish, Plugs and Stoppers, Painted Exterior.

Dimensions—Length over all, 49½ inches; Height from Floor to Top of Tub, 31 inches; Height from Floor to Top of Back, 43 inches; Front to Back Outside, 25½ inches; Front to Back Inside, 21 inches; Depth Inside, 14½ inches.

Porcelain Enamel 2-Section Laundry Tubs

Roughing in Measurements—Centre to Centre of Supplies 10 inches; Centre to Centre of Outlets, 8 inches; Centre of Outlet to Wall 6¼ inches; Centre of Outlet to End 21 inches; Height from Floor to Centre of Supplies, 37 inches.

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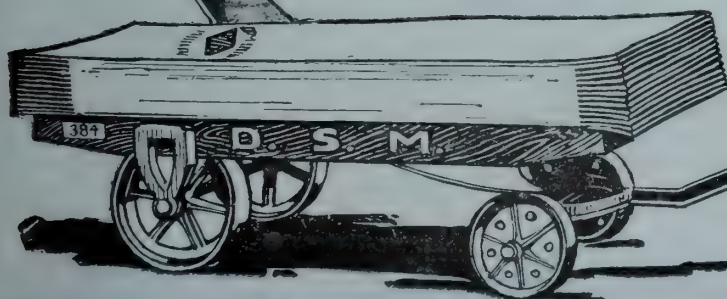
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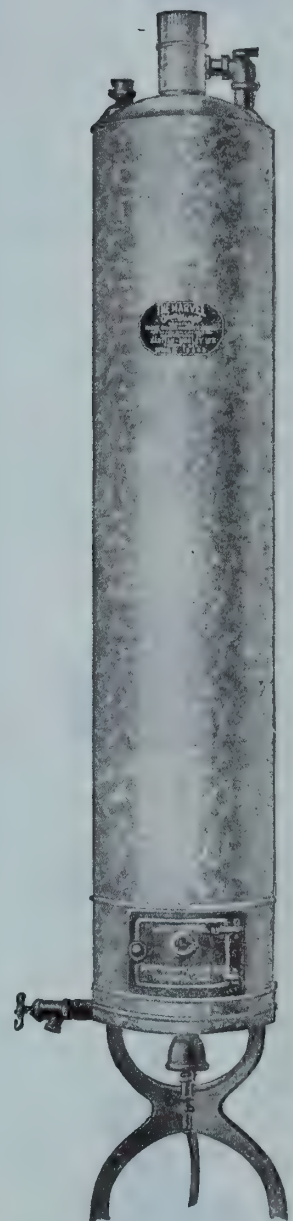
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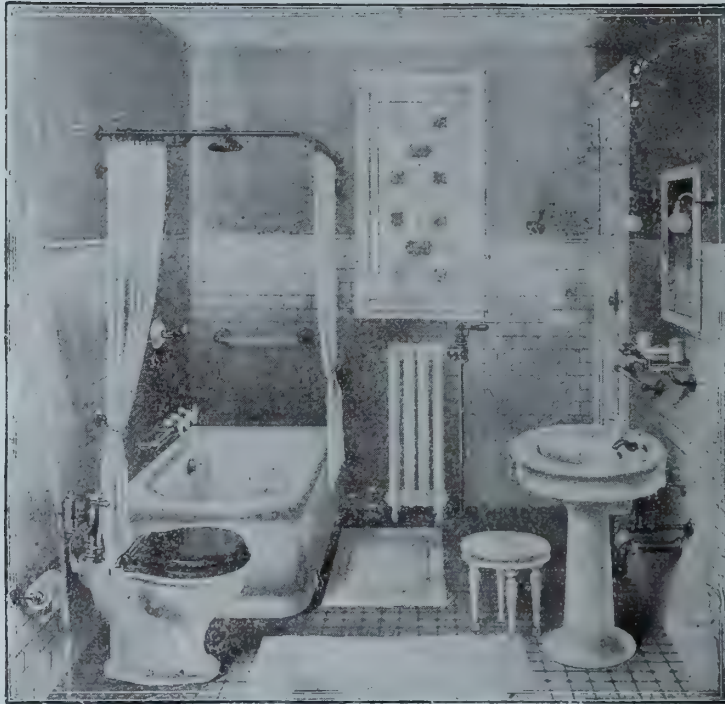
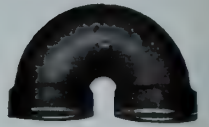


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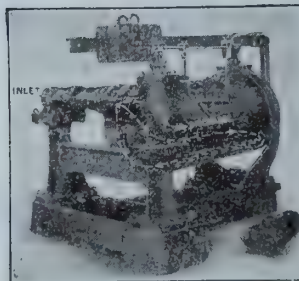
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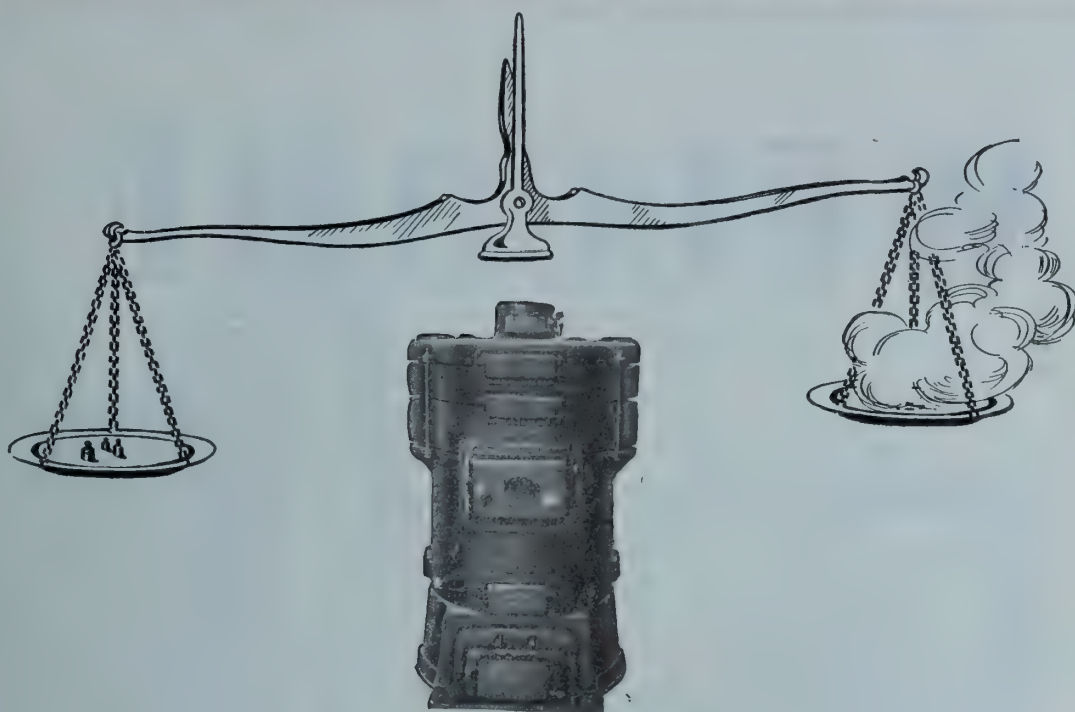
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Of course, you remember our dear friend, Sir Walter Raleigh, and how he threw his cloak down to be walked on every time Queen Elizabeth forgot her rubbers.

It seems, when he wasn't doing the keep-your-feet-dry-Lizzie-stunt, he was forever doing something that everybody said couldn't be done. One Wednesday evening just before prayer meeting, he declared he could weigh smoke. Of course such a statement kicked up a lot of dust, and one old fellow even went so far as to say that Walt's spark plugs were not working.

However, Sir Walter took a pair of scales and carefully weighed out an ounce of tobacco,

which he smoked with deliberation and in high glee. After which he as painstakingly weighed the ashes. Subtracting what the ashes weighed from the weight of the tobacco, he sure enough had the weight of the smoke.

Well sir, taking a leaf from Sir Walter's book we did about the same thing with the Burnham and the coal it burned.

Only we went a step further and also measured the amount of heat. The figures are very, very discouraging to the coal men; but mighty cheering to pocketbooks that have been punched flat by profiteers.

Next time we meet my talk is going to be Pot Luck, changed to a Lucky Pot.



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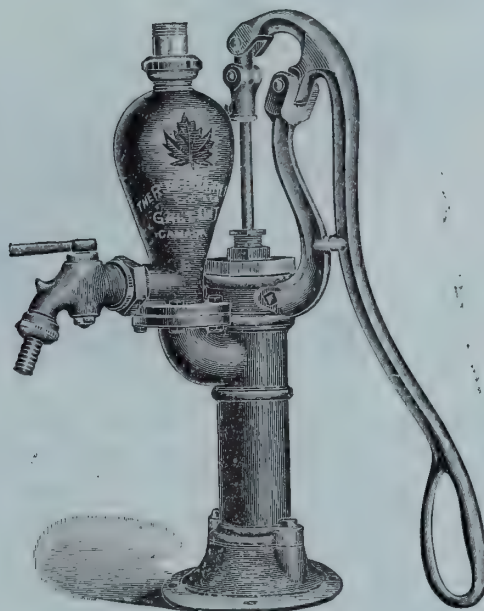
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For Rural Plumbers

Read What Users Say

Holland, Man., March 24th, 1921

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The system has proved a very great comfort, which the whole family appreciates.

(Signed) M. E. (Mrs. W. J.) Charters.

Balearres, Sask., April 5th, 1921

I had no trouble from freezing. I do not know of any improvements that could be made. Everything works fine.

(Signed) THOS. STEPHENS

Regent, Manitoba, March 25th, 1921.

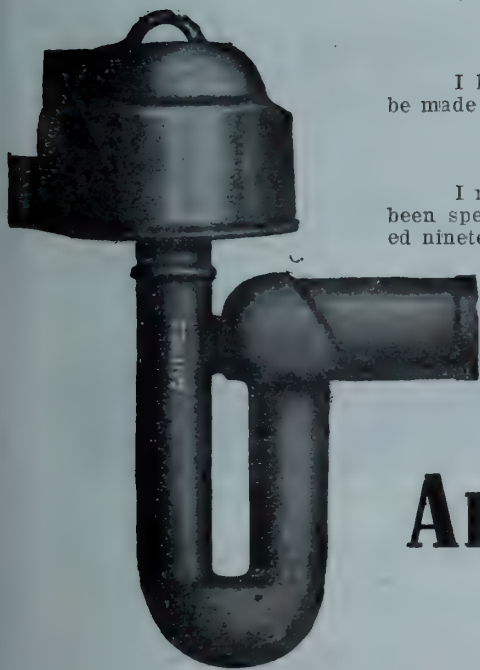
I must say that we are more than satisfied; the system works perfectly. I have been speaking well of it to anyone that has asked me. The system has been installed nineteen months.

(Signed) DOUGLAS POTTER

Oak Lake, Man., March 30th, 1921

The installation has given perfect satisfaction. There are no objectionable features.

(Signed) V. W. DUNLIVIE



Anthes Foundry Co. LIMITED
Toronto and Winnipeg

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

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CONTENTS

Retarding Progress of Plumbing Industry	13
New Quebec Builders' Association Formed	14
Criticizes Master Plumbers' Action	14
Opening Up New Sources of Business	15
Pattern For Tapering Spiral Pipe	17
Editorial	18
News From Here and There	19—22
Market Conditions and Tendencies	23

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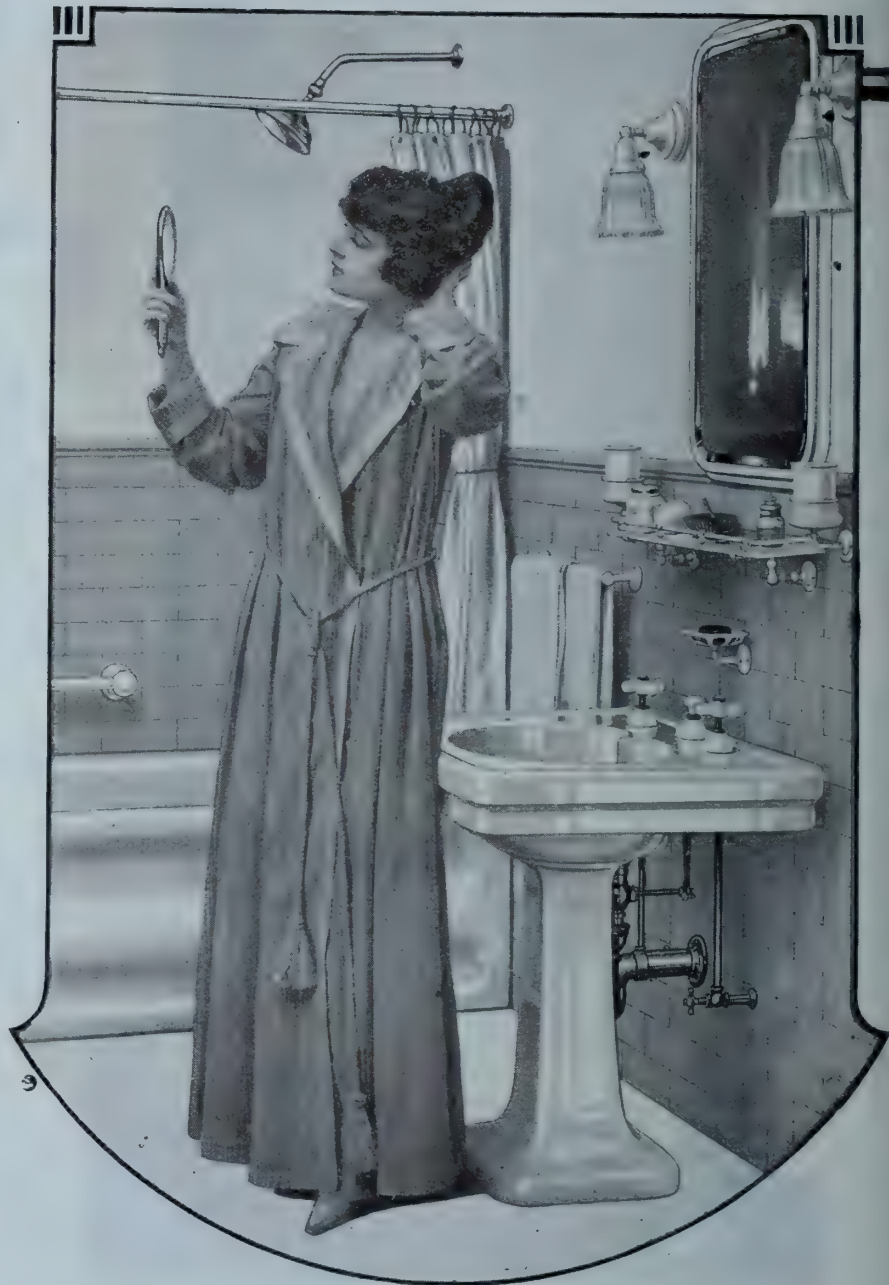
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Plumber and Steamfitter of Canada

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TORONTO, AUGUST, 15 1921

No. 16

Retarding Progress of Plumbing Industry

**Easy at Present to Enter the Field—Trade Sold Promiscuously—Credit
Freely Extended—Business Standards Need to be Improved.**

IN general, the public is still unappreciative of the service rendered by Sanitary Engineers, and while much of the ridicule heard greatly exaggerates the facts, there are many operators in the field whose ability is not up to the standard. The public, however, are to blame in many instances for the character of work done, as invariably when anything happens to a house the owner gives the job to the man he thinks will do the work for the smallest sum and the result is that too often trouble occurs again sooner than it would if a first class man had been employed in the beginning.

It is quite evident, nevertheless, that in these days lowest tenders seem to count for all. Character of work and ability to complete a job that will stand up and bring favorable comment later seem to receive little consideration at the time the job is let in many instances.

Unfair Competition

A member of the craft stated to SANITARY ENGINEER a few days ago that it was almost impossible to do good work and compete on price with the "shoe String" plumber. It is very easy at the present time to enter the plumbing field. In many cases the journeyman that gets out of a job simply goes into business for himself. He may be a good workman and have the necessary capital and in such instances all well and good, but in many cases he is short of ability and not financially responsible. Situations of this kind are preventing good sanitary engineers, with business ability, from entering the field and members of the craft in their respective communities should do everything possible to prevent inefficient plumbers from obtaining licenses.

"Collections Must Improve"

Difficulty in securing collection of accounts has seriously inconvenienced many sanitary engineers in the past. There is no reason why sanitary engineers should be money lenders to the public and the credit situation will continue to remain difficult until ways and means are devised that will loosen the purse strings of the public more quickly than has been customary.

Credit

Wholesalers and manufacturers can do much to improve the credit situation by impressing upon the trade the necessity of prompt payments. In many instances wholesalers and manufacturers are too lax in the direction, and the result is reflecting upon the status of the industry. It is a fact that promiscuous extending of credit allows many inefficient operators to drag along and continue to tender for business at figures on which a capable operator doing good work cannot make a fair profit. It seems reasonable that an operator with a well equipped place of business, financially responsible and with a favorable reputation for doing high class work should be protected against unfair competition which retards industry and encourages abuse from the public. If the standard of the industry is to be raised on a par with other profit yielding enterprises business must be secured and handled in a way that will make it more profitable for the operator than it is to-day. More exact methods of keeping track of costs are necessary and new methods of getting business must be pursued.

Bigger Business

There are great opportunities for bigger business in the plumbing field to-day. While it may be said that many lines are oversold, no one can say that the public is oversold with modern plumbing. Thousands of people need sanitary conveniences more than they do other things and a bigger demand can be stimulated for modern sanitary conveniences as in the case of other commodities if Sanitary Engineers will follow the same aggressive selling methods.

Time has come when, if the plumbing business is to prosper as other lines have, operators must go out and show the public why they should have modern sanitary conveniences and influence them to buy the kind of plumbing they should have, not just something that will substitute for the modern and correct thing.

The foregoing points touch briefly upon pertinent needs to improve the status of the plumbing industry. It is urged that Sanitary Engineers, wholesalers, manufacturers and all interested in raising the efficiency of the industry will immediately take concerted action to remove the obstacles that are impeding the progress of the trade.

New Quebec Builders' Association Formed

The Association of Building Industries for the Province of Quebec — Montréal and Quebec Plumbers Elected to Executive

Montreal.—For the purpose of linking up the building industry through the Province of Quebec, and the guarding of the Legislative aspect for same, the Quebec Builders inaugurated their new organization which will be known as the Association of Building Industries for the Province of Quebec at a conference held this week in the Montreal Builders' Exchange.

While the Montreal and Quebec Cities Exchanges have always taken care of their interests, it has been felt that there was need for lining up the smaller towns and obtaining their co-operation whenever the general interests of the industry may come before the Provincial Legislature.

At yesterday's meetings, K. D. Church, president of the Montreal Builders' Exchange, was appointed chairman of the gathering; D. K. Trotter, secretary, was appointed secretary, while those also present were: A. T. Alexander and J. T. Walsh, of the Board of Directors, Montreal Builders' Exchange; E. G. Brous-

seau, president, E. A. Galarneau, vice-president and J. P. Lemieux, director of the Quebec Exchange, and J. T. St. Pierre represented the French Building Contractors of the City of Montreal.

After extending a welcome to the Delegates, Mr. Church outlined the purposes for which the meeting had been convened, showing the need which exists for such an organization, and making special reference to the Mechanics' lien law passed in 1916, the Scaffolding Act of last year, and the Bill which was passed dealing with the heating of public buildings for the Province of Quebec. With regard to these two latter he was not aware that any Builders' organization had been consulted in the matter, the reason probably being that there was no body in existence that could adequately express the views of the various building interests of the Province. The sole object of organizing this new Association at the present time was that it might serve as an official mouthpiece for the construction interests of the

whole Province, so that it might be in a position to give the Provincial Government, and especially the Department of Public Works and Labors, the benefit of their experience.

Appointment of Officers

The following officers of the new Association were elected as follows: K. D. Church, Montreal, president; E. D. Brousseau, Quebec, first vice-president; A. Gratton, Montreal, second vice-president; D. K. Trotter, Montreal and J. P. Lemieux, Quebec, were appointed joint secretaries.

Constitution and by-laws for the new Association were then considered and draft thereof was approved, J. P. Walsh and D. K. Trotter being appointed as a committee to incorporate amendments for the meeting. It was agreed that before being finally approved, the revised draft should be submitted to the Builders' Exchanges of Montreal and Quebec.

The first annual meeting of the Association was decided to be held in Quebec City, the date to be fixed in relation to the opening of the Legislature.

Before the meeting came to a close the hope was expressed that the new Association would have the general effect of stimulating and developing the activities of other branches outside of Montreal and Quebec cities.

CRITICIZES MASTER PLUMBERS' ACTION

J. Bruce Says Most Workmen Brought to Ottawa Under False Pretences—Should Base Fair Wage Clause on Conditions.

J. Bruce, an international officer of the Plumbers' and Steamfitters' Union, addressed the delegates to a meeting in Ottawa of the Allied Trades and Labor Council upon the necessity of strong organization, and the prevailing strike amongst the local members of the craft.

He strongly criticized some of the master plumbers for their action in endeavoring to break the strike by importing into the city members of the National Union from the province of Quebec, and said that although the strike had been in effect eleven weeks, the plumbers' union had not experienced a single desertion from its ranks.

Mr. Bruce stated that most of the National workmen had been brought to Ottawa under false pretenses, had become aware of the fact, and ninety-five per cent. had gone back, so, that the open shop policy of the masters had not so far proved effective. According to his figures, 28 shops in the city have agreed to the wages and conditions demanded by the union, and only ten are holding out for the open shop and reduced wages. He said the plumbers in Ottawa were asking for increases because the rate paid here was ten cents per hour less than the average rates in other cities in Canada, with the possible exception of a few in the west. Then too, the cost of living in Ottawa was higher than anywhere else.

Mr. Bruce criticized the city council and government for refusing to base the fair wage clause upon prevailing conditions, as had been done in the past, and which, he said, could be supported by sworn figures. He pointed out that it was evident that from present conditions that the worker was not responsible for the stagnation in business, as had been claimed by the employers, and voiced the warning that unless work was found for the workless, and a decent standard of living was provided for them, the alternative was revolution.

CATALOGS AND BOOKLETS

"NEW IDEA" PIPELESS FURNACE

One of the recent folders issued by the Hamilton Stove and Heater Company, specially illustrates the "New Idea" pipeless furnace. As the name indicates the feature of this heating apparatus is the fact that no pipes are required, and stacks, cold air returns and similar installations are eliminated. The duplex grate, and the heavy flanged one-piece cast iron fire-pot, are also other points emphasised by the manufacturers. The folder is adequately illustrated showing the special designs and the manner in which the "New Idea" furnace is intended to cover the heating problem of any small building, either store, home or other structure.

COURTRIGHT PASSES

WATERWORKS BY-LAW

Courtright, Ont.—The Municipal Council have passed the necessary by-law for the installation of a water system. The contract was let to the Webster Construction Company, of London. The Western Salt Co., Limited, of this village, will supply the water. Most of the pipe is on the ground and work commenced. This by-law has been hanging fire for a number of years, but finally was put through by the reeve and three councillors.

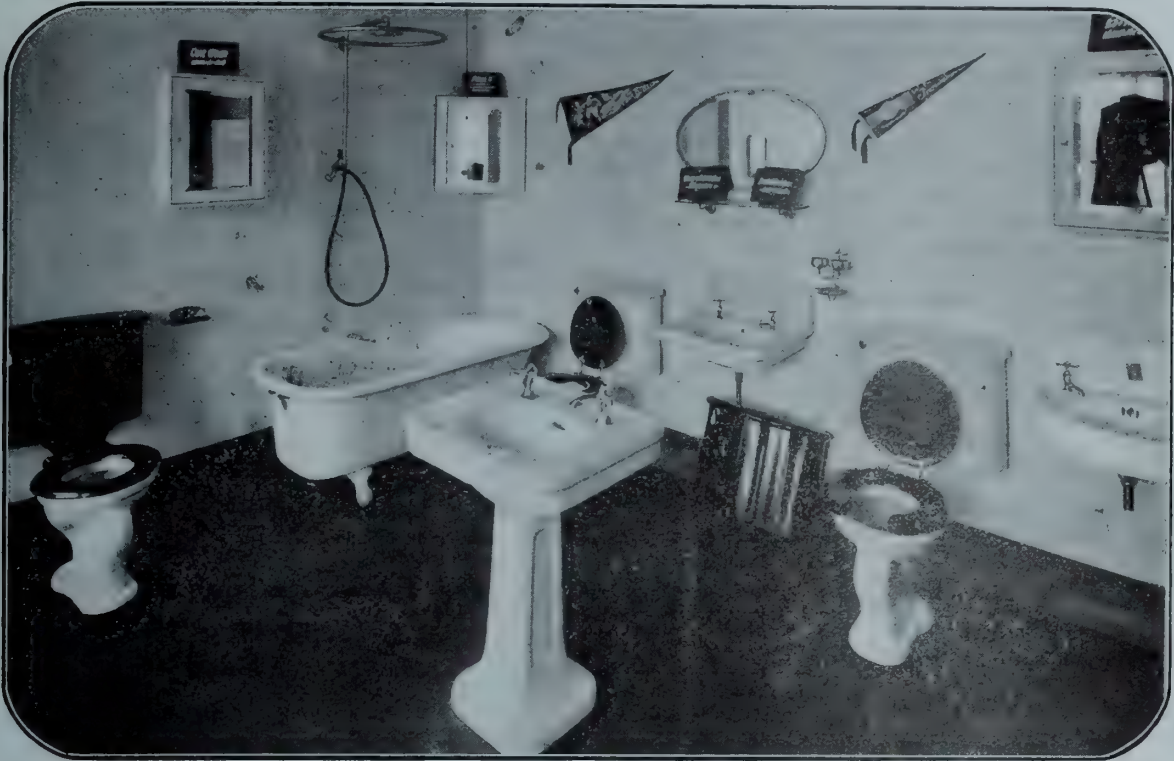
BROCKVILLE MAY PUMP BY GASOLINE ENGINE

Brockville, Ont.—A proposal endorsed by engineering authorities to reorganize the pumping equipment of the Public Utilities Commission at a cost of approximately \$55,000 and which would result in an estimated annual saving of approximately \$15,000 through lessened coal consumption was brought before the members of the City Council and of other public bodies at a joint meeting of the City Council and other civic bodies.

Engineers of the Hydro-Electric Commission have endorsed the gasoline engine principle and the abandonment of the steam plant which has been in use many years. The matter will be given further consideration before a recommendation is made to the Council by the Public Utilities Commission.

Opening Up New Sources of Business

Plans for Rural Water Supply and Extension of Electric Power Into Rural Districts In Canada Offers Big Field of Potential Business for Plumbers and Heating Engineers — Long List of Farm Requirements When Water System Is Installed.



A display of modern plumbing fixtures arranged by a plumber located near a rural district. This display, a few years ago, would have seemed useless unless appealing to the most up-to-date city trade, but progress has changed things and today the farmer is just as much interested in such high class fixtures as is the city dweller, providing he has the necessary facilities to make use of them. With the extension of water systems and electricity into the farming communities the plumbing and heating engineer may well give some attention to the rural possibilities of his own district.

THERE are some important developments taking place in Canada now which offer splendid prospects of future business for the plumbing trade. In view of the fact that the dearth of new building in recent years has increased the necessity of the plumber looking to new fields for business, it is encouraging to note these developments which will materially increase the field of potential business.

In this issue appears a report of the progress being made in connection with a water supply system in Saskatchewan designed to supply some Saskatchewan cities and provision is also being made for the supplying of water to the dwellers of the rural districts along the way. A similar plan was followed by the municipalities along the line of the Greater Winnipeg Water District. Coming to Eastern Canada we find plans under way for the extension of electric power into the rural districts throughout Ontario.

This is being done on a co-operative basis, the farmers in some cases helping with the work of erecting transmission lines along the various concessions.

These developments are but a few of many contemplated in all parts of Canada and which are designed to raise the living standard of the rural dwellers. With a good supply of clean water under pressure water systems can be installed throughout the districts mentioned and city facilities enjoyed. The extension of electric power to the rural districts not only gives added encouragement to the farmer to have all city conveniences but it paves the way for the installation of plumbing conveniences as it facilitates the pumping of water on the farms.

Here therefore is a big field of prospective trade opening up for the plumber and heating engineer.

The question is frequently raised: Can the farm home be made as comfortable as the home in the city and more pleasant on account of the out-door life? It certainly can. The basis of comfort in the city rests primarily on two things, the city water works and the city electric company, which supply electricity and water in such a way that there is practically no labor involved in having them, and the cost is very reasonable. The only difference between the farm and the city is that the farmer must have his individual plant in each case, instead of being able to combine and co-operate to share the cost. However, on the basis of the results secured, the cost of operating individual plants to supply water and electricity is not at all out of the question. Progressive manufacturers and dealers have realized more this year than ever how absolutely

untouched is the field of supplying city conveniences to the country homes, and this season is particularly opportune because the farmers are able to invest the money.

Sell the Farmer City Conveniences

There is no need of kow-towing to the farmers, or flattering them unnecessarily, or calling them the "Kings of the Earth"; it is merely a matter of common sense for them to get these things. You would not think of renting a house in the city that did not have running water and electricity in it; or if you did you would have to get a very much reduced rent. Why, therefore, expect farmers to live under the same conditions? For farmers are white men, and many of them are relations of ours, who think and act just about the same way we do. Therefore the progressive dealers who are going to get the good business of the future, business on which there is a margin of real profit, are the ones who sell electric lighting plants and water systems.

Paves Way for Future Business

When the plants are in, other sales follow as a natural matter of course. What we are interested in as plumbers and heating men is water systems, for the water works game is very closely allied with the plumbing. When you sell a water system to a farmer it will be a money maker for him, for which reason it will be the foundation of a large number of future sales. After he has the water system, and finds out how convenient running water is he will, of course, want a modern sink in his kitchen to help Mrs. Farmer keep the dishes clean and the kitchen in order. Likewise he will want a heater to supply hot water all over the house, for hot water has also become an essential of modern up-to-date housekeeping. Water heating systems are available which are not expensive to operate. If operated correctly they will supply all the hot water required in a farm home.

Laundry, Bath, Etc., Sure to Follow

With plenty of running water, and hot water in the bargain, a modern up-to-date laundry is a mighty fine thing for the farm home, which makes possible the sale of a complete set of laundry tubs as well as a cellar drain. The next thing is a complete bath room, which would require at least the three pieces, the tub, closet and lavatory, as well as the cabinet and a few accessory fittings. For the farm home especially, the shower bath is a mighty valuable thing, and once the farmer sees the good it will do him he will feel inclined to buy one. It is even possible to interest him in buying the same things for his help. As a matter of fact, the quarters of the help require the attention of the farmer, for his help appreciates the comforts as much as he does. It is getting to be practically impossible to keep help un-

less they are taken care of the way people like to be taken care of in the city.

Hot Water Heating Possible

When a man has plenty of water under pressure in his home he finds it much more convenient to handle a hot water heating plant, and with the plant goes the heat regulator. All these items make a very good volume of business when they are lined up. And these apply only to the comfort of the house.

Pays Liberal Dividends

As for the money making possibilities on the farm itself, they are almost unlimited, for a splendid supply of running water pays liberal dividends to any farmer who has a truck garden or any kind of stock. It is well known that truck farming pays a big dividend according to the acreage and many farmers specialize on this one type of farming. For these who do so, a system of overhead irrigation has been devised, which is also a big money-maker, as it guarantees rain at all times.

Ordinarily we do not think of crop failures from absence of rain, but there are times when rain would be a mighty welcome thing if it only came when it was needed. Therefore, when rain can be supplied at will it means that the crop yields, even though they might not be a failure, would be very greatly increased when the over-head system of irrigation is installed, guaranteeing a plentiful supply of rain at all times. Some farmers have been able to triple and quadruple their ordinary yields under favorable circumstances. In addition the overhead irrigation system protects young plants from frost.

Merely a Good Start

Taking it all in all, selling a water system to a man should be only the start, for when all of the possibilities are added up a good many hundreds of dollars worth of material can be sold, which could not be sold if a man did not have the water system in the first place. Therefore it is a mighty good thing for any plumbing and heating department to put these systems in, because it gives the dealer a chance to go back to the farmer for several years to come, for additional business in that particular line.

Everybody who has made a study of the matter admits that life in the country, as well as the food, is very much better on account of the absence of noise, dust, confusion and high prices. Why then, should the farmer desert such a pleasant home? The simple reason is, we believe, that the life is not pleasant in every respect. Whenever a bunch of city people go camping they put up with the inconvenience of being away from electric lights, bath rooms, hot and cold water at the turn of a tap and other things, because they know that they will not have to stand the inconvenience very long. If home life was as convenient

on the farm as it was in the city, city boys would be interested in the proposition of going into the farming business. At the same time farmers' sons who had the natural inclination to farming would not be so ready to go to the city, take a business course, and get a job keeping books for somebody for \$12.00 a week.

TEST NEW SOUTH

SHORE SEWER PIPES

Montreal—For the purpose of testing a sample of cement piping which is being used in the construction of an intersecting sewer for the joint municipalities of St. Lambert and Longueuil, a party of resident engineers of Montreal went to Longueuil.

The sewer is being erected by the Dominion Lock Joint Co., Ltd., and the Independent Concrete Pipe Co., Ltd., the former being the lessees in Ontario and Quebec for this work under the patents of the Lock Joint Pipe Co., of New Jersey. The sewer, which is expected to be finished this month, will discharge through 400 feet of 48 inch sub-aqueous pipe some distance below Victoria Pier. The test being carried out is to prove the ability of the pipe to withstand the pressure of the load of earth with which it is covered in the trench and also that the joints between pipes will be strong enough. For this purpose piping will be supported and steel billets will be placed on top of it until the weight becomes too heavy to be borne.

SANITARY MEASURES

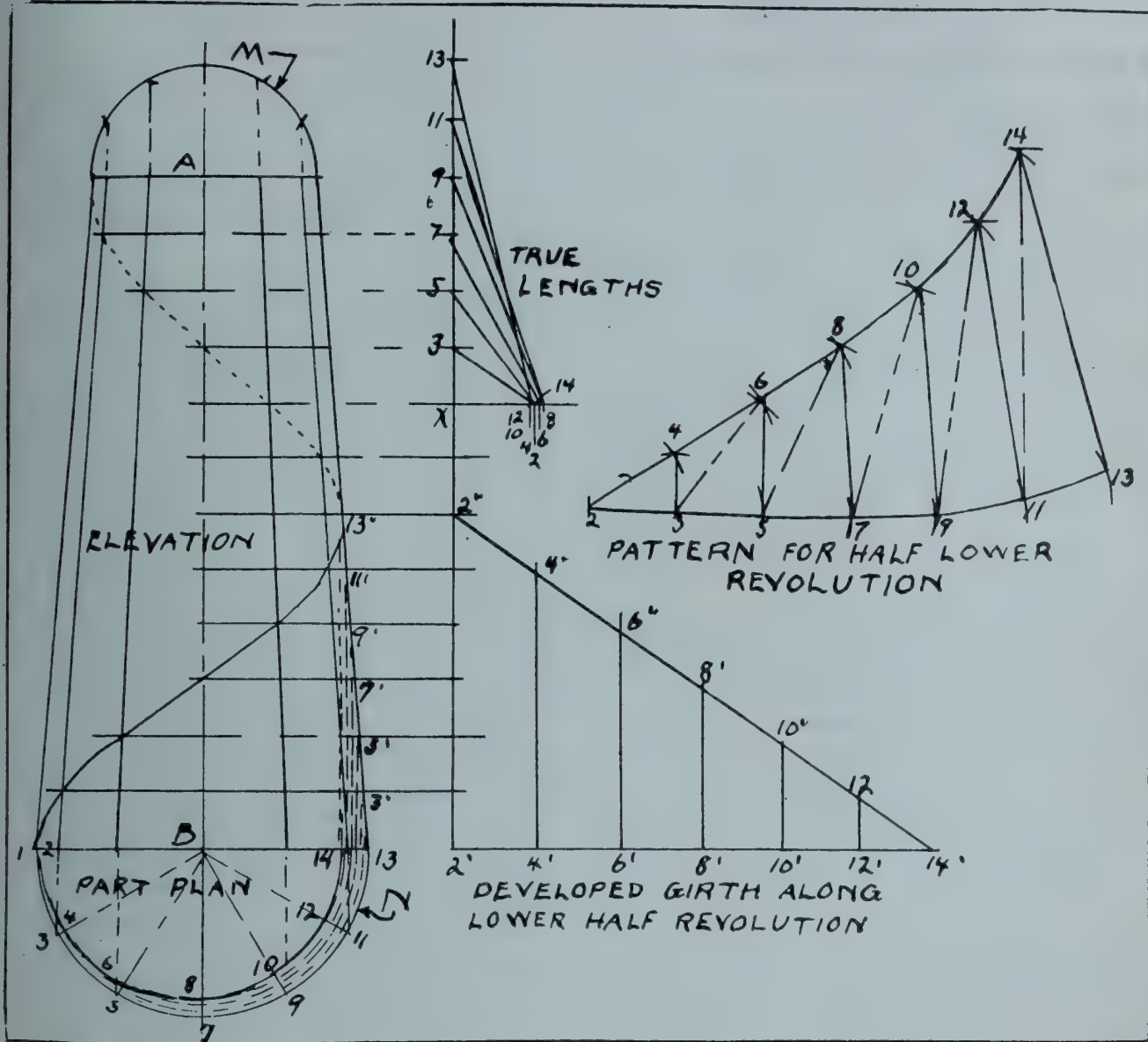
IN MONTREAL

Montreal—Street cleaning and the removal of garbage is the subject of a report prepared by Aime Cousineau, sanitary engineer of the City Health Department, under the title of "Street Hygiene." In the matter of garbage disposal, Mr. Cousineau points out that the time has almost come when the practice of using such waste to fill up quarries and holes cannot be continued since dwellings, with the spread of the city, are yearly encroaching on the places used as dumping grounds.

In discussing street cleaning, Mr. Cousineau states that from the point of view of sanitation the measures to be taken in the choice of the materials used for the covering or the paving of roadways should have as their principal object to prevent the formation of obnoxious or dangerous dusts, either on account of their mechanical action or on account of the microbes they may spread. Mr. Cousineau recommends the adoption of a standard garbage receptacle made of metal, easy to clean and provided with a cover, which would eliminate many inconveniences from the point of view of hygiene as well as from that of cleanliness.

Pattern For Tapering Spiral Pipe

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri



IN making tapering spiral pipes, the spiral is laid out by means of section M and N. The height of spiral A-B is made equal to two diameters of large base. This pitch of spiral can be made anything desired or required. The center line is divided in twice the spaces met with in M or N. By drawing lines as shown we develop the intersection for sketching the spiral lines through. Now to lay out the pattern, it would be the quickest and easiest to treat the fitting as a common taper and develop the spiral in it. This is then cut out, and the pattern is finished. But in this case we develop the spiral by triangulation. Observe the taper 13-13' shows the slope per rise of each

space. By dropping lines to base 1-13 and sweeping them around to the radial lines of N, we develop the plan view of spiral line in elevation. Now by picking these spaces as 2-4-6-8-10, etc., from plan, and set them as 2'-4'-6'-8', etc., along base line 2'-14', and from 13' or half revolution as 2'-2'' as the height, we draw slant line 2'-14' as the girth along spiral edge. By erecting lines, as 4'-4''; 6'-6''; 8'-8'', etc., we have the true girth spaces as 2'-4'-6'-8'', etc. Our next point is to develop the true lengths. The slant line 13-3'-5'-7'-9'-11'-13' represents the true lengths for all solid lines. But the dotted connecting lines as 2-3; 4-5; 6-7; 8-9, etc., from plan are set as

x-4, 6-8-10, etc., in diagram of true lengths. Then by raising a space each time, as 3-5-7-9, etc., we have the true lengths for dotted lines. To set out the pattern draw a line as 2-3 equal to arc 1-3 from N, next pick girth 2'-4'' and from 2 strike arc 4 in pattern. Then pick height 13-3' from elevation and using 3 in pattern as center, cross arc in point 4. Next pick girth space 4'-6'' and set as 4-6 in pattern. Also transfer space 3-5 from N and set arcs in pattern as 5 and 6. Pick true length 4-5 and using 3 in pattern as center, cross arcs in point 6. Then pick line 13-5' and cross arcs at 5. Repeat this process until as much of the pattern is developed as desired. Laps for riveting must be allowed extra.

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No. 16

DECEPTION IN TENDERING

A NOVEL means of deception which has affected heating and ventilating contractors in some sections and which should be watched for carefully, is that of the firm which poses as heating and ventilating engineers and contractors and offers to lay out the heating plans for an architect free of charge in consideration of his using a certain type of apparatus which they manufacture. In the specifications, which are also prepared by them, certain standard devices of national reputation are named, but are never used because the firm is always either the manufacturer or the agent for similar devices of an inferior quality.

Such plans with specifications are given out to numerous heating and ventilating contractors who spend time securing data and prices on which to base estimates. Then when the architect learns how much higher is the cost of the specified apparatus than that manufactured by the designing engineers they proceed to offer their own devices which they make or control, on which they are able, due to inferior quality, to quote a figure very much less than that submitted by the other contractors.

The specifications are carefully framed so that substitution is made easy. For example one such specification reads: "Furnish and install cast-iron or metal made by the company." In this case the outside bidders do not make anything but cast iron articles so they quote on a cast-iron device. As result the designing engineer's bid on a sheet-metal device is easily put over.

On being asked why it did not specify its own materials in the first place, the concern making the layout replied that it would not do on ethical grounds and would not look well to the architect. In the event that the architect insists on the use of standard material the next move of the designing engineers is to go to the owner direct and represent to him that they have shown the architect where they could effect a substantial saving. This argument generally wins the contract. Such practices are only being followed in very limited number of cases but they are being done at the expense of bona fide manufacturers, contractors, architects and owners.

CONFLICTING OPINION

THERE are two distinctive reports, appearing this issue, which give evidence of conflicting opinion among plumbing and heating engineers in regard to the wage question and its effect upon a resumption of building activity through ultimate lowering of costs. Engineers in one Western city have accepted wage reductions on an agreement from the master plumbers which provides for a reduction in price to the consumer of twice the amount of the reduction to the men. On the other hand plumbers in an eastern city have declined to accept a decrease of ten cents an hour suggested for all the trades interested in building as result of a recent conference held to discuss ways and means of stimulating building activity.

There may be much to be said on both sides of the question, and at the conference the workmen raised many points such as the fact that previous cuts in costs had not stimulated activity, that the financial interests were holding out for exorbitant rates on money loaned for building, that building materials had not declined as much as they should and that contractors, building supply men and manufacturers were not taking any decreased remuneration from their business while expecting the workman to do so.

There is a big problem to be met, and it is quite evident that the old suspicion entertained by the workmen of other branches of their trade still exists to a large degree. At the conference the manufacturers and supply men laid their cards on the table and asked for the cooperation of labor. The Minister of Labor quoted figures backing the statement of manufacturers and supply men that their prices had been much decreased in recent months whereas labor costs have practically remained stationary. On the other hand labor contends that any reduction would lower their standard of living. The latter effect is not to be desired, but it is plainly evident that all branches of the trade will have to get together in a better spirit of cooperation than has heretofore been evident, and everyone will have to bear their fair share of the shaking out process. The plan followed by certain master plumbers' organizations of setting a production schedule has increased production and thereby been a factor in lowering plumbing costs. An extension of this plan coupled with the readjustment of wages to declines in the cost of living will result in lower costs without any lowering of the standard of living. It is then up to the supply men and contractors to forsake any agreements which have unduly boosted prices and allow of estimates being made which will be favorable enough to encourage construction.

BRIEFS

Bathtubs have been placed on the list of luxuries for special taxation in Germany, it being held that those rich enough to have bathtubs are able to pay more taxes. Reports like this give some encouragement to Canadians who have thought we were over-taxed. Sanitation is a thing to be encouraged not retarded by taxation.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

CONTRACTS AWARDED

Moncton, N.B.—Thos. Johnston Co. Ltd. have been awarded contract for vapor heating and installation of two 70 h.p. Robb boilers at Harkins Academy, Newcastle, N. B. Contract price about \$8000.

Also contract for Trane system of vapor heating in office and store building for L. T. Joudry, Campbellton, N.B., contract price about \$4000.

Also contract for plumbing and vapor heating in Mother Home, St. Martha's Convent, Antigonish, N. S. Contract price about \$16,000.

—O—

WESTERN ONTARIO NEWS

H. G. Huht, 633 Emery street, London, Ont., wants prices on heating, plumbing and electrical work in connection with new \$4000 residence.

Allan King, 566 English street, London, wants prices on hot air heating, plumbing and electrical work for new \$4000 residence.

William Vickers, R. R. No. 3, Wiarton, Ont., wants prices on heating and plumbing in connection with new \$5000 dwelling to be erected.

Hugh Whaley, Leamington, Ont., wants prices on heating, plumbing and electrical work in connection with new \$5000 residence.

In connection with the new sewage construction work at London, Ont., the council has awarded contract for electrically operated pumps to the Northern Foundry and Machine Co., of Sault Ste. Marie, and the general contract for force main to the J. H. McKnight Construction Co., of Toronto. The Francis Hankin Co., of Montreal, was awarded contract for Venturi meter.

The Erie Amusement Co., B. F. Hon-singer, St. Thomas, Ont., president, plans to erect a 200 room hotel at Port Stanley. Plans will be prepared.

The ratepayers of Tilbury, Ont., have carried a by-law to raise \$30,000 for waterworks extensions and plan in the spring to proceed with new sewers.

Plans are being prepared at Goderich, Ont., for a new chlorination plant and filtration plant to cost \$70,000.

WATERWORKS, SEWERAGE, ETC.
Point Grey, B.C.—Municipality of Point Grey will construct sewers at cost of \$75,000.

Brandon, Man.—Fowler & Young, Winnipeg, have general contract for construction of watermain costing \$22,-270 for Prov. Gov't., Dept. Pub. Works.

East Kildonan, Man.—Municipality awarded following contracts: Sewers, at \$23,000, Thos. Jackson & Sons; sewers and watermain, at \$20,000, Eng. Battershill; cast iron pipe, at \$12,000, Canada Iron Foundries.

CONTRACTS AWARDED

Hamilton, Ont.—Plumbing and heating contracts for alterations to school costing \$12,000 for Separate School Bd., are awarded Stanton & Mitchell, 173 York St.

Toronto—Additional contracts for erection of theatre costing \$150,000 for Standard Theatres, Ltd., are: heating, W. H. Mies, 188 Dupont St.; roofing and sheet metal, Toronto Sheet Metal works, 36 D'Arcy St.

Hamilton, Ont.—Plumbing contracts for residence costing \$15,000 for Frank Goldblatt, 75 Robert St., are awarded to Bloom & Britton, 121 James St. S.

Montreal—Additional contracts for school costing \$250,000 for R. C. School Bd., Durocher St., are: plumbing and heating, T. O'Connell, 183 Ottawa St.

Sydney, N.S.—Plumbing and heating contracts for store and apts. costing \$10,000 for Hudson & McEachren, Prince St., are awarded to J. W. Rudderham, Victoria Rd.

Moose Jaw, Sask.—General contract at \$21,947 for erection of school for Pub. School Bd. is awarded to P. W. Graham, New Union Station, Moose Jaw. Electrical, plumbing and heating contracts are awarded to Alexander & Baird, 43 Fairford East.

Toronto—Additional contracts for three stores and apts. costing \$67,000 for M. L. Coldoff, 415 Markham St.; are: plumbing, Chas. Davies, 51 Sellers Ave.; heating, Peerless Furnace Co., 548 College St.

Winnipeg—Plumbing and heating contracts for residence costing \$15,000 for J. W. Parker, 473 Beresford Ave., are awarded to Keller & Whitfield.

Toronto—Plumbing and heating contracts for residence costing \$15,000 for G. F. Cudmore, 5 Oakmount Rd., are awarded to A. J. Wise Heating & Plumbing Co. Ltd., Vaughan Rd.

Toronto—Plumbing contract for two duplex residences for Paul Von Szelski, 6 Indian Valley Cres., is awarded to Howard Plumbing & Hardware Co., 21 Howland Ave.

Ottawa—General contract for alterations to stores for bank costing \$60,000 for Bank of Toronto is awarded to A. Garvoek, Regent Theatre Bldg. Additional contracts are: heating and plumbing, W. G. Edge Ltd., Banfl St.

Ottawa—Contracts for plumbing and heating for garage costing \$10,000 for Col. P. Edwards, Stewart St., are awarded to McKinley & Northwood, 56 Rideau St.

Toronto—Plumbing contract at \$11,-889 for Fern Ave. School for Bd. of Education is awarded to Purdy Mansell Ltd., 63 Albert St.

Ottawa, Ont.—Plumbing and heating contracts for alterations to residence costing \$10,000 for J. B. Duford, 54 Rideau St., are awarded to McKinley & Northwood, 56 Rideau St.

Toronto—Heating and plumbing contracts at \$28,690 for Dufferin School are awarded to Purdy Mansell Ltd., 63 Albert St.

Montreal—Plumbing contracts for residence costing \$20,000 for L. Wisintainer, 2141 Jeanne Mance, are awarded Z. Cusson, 1256 St. Lawrence Blvd.

Minto, Man.—C. W. Hall, Brandon, Man., has general contract erecting Memorial Hall costing \$13,000 for Town. Plumbing and heating contracts are awarded to Heating & Plumbing Co., Ltd., Brandon.

Montreal, Que.—Plumbing and heating contracts for pathological bldg. costing \$460,000 for McGill University, Sherbrooke St. W., are awarded to W. G. Edge Ltd., 116 Craig St. W.

—O—

APPRECIATES CONVENTION REPORT IN FRENCH

The following letter has been received by Sanitary Engineer from H. Lemieux, Secretary of the Builders' Exchange, Quebec:—

Sanitary Engineer,
Toronto.

We have received copies of July 1st issue of Sanitary Engineer in which you published the formation of the new Quebec Provincial Society and the address of Mr. E. G. Brousseau in French.

We must thank you very much for same and assure you that the report having been published in French has been greatly appreciated by everyone concerned.

(Signed) H. LEMIEUX,

Secretary Builders' Exchange,
Quebec.



PORT HOPE

The Smile On Your Wife's Face

It is a happy thought to any man that while he is busy in store, office or factory the little woman at home is able to perform her household duties without that unnecessary labor which robs so many others of their health, their looks and their cheerfulness.

A combination porcelain enameled sink and laundry tray of the best type—such as a "Port Hope"—helps largely to ensure such satisfactory conditions.

Your Name and Address Here

GET

*You might have the most
yet if nobody knew it you*

*Obviously, then, business
the Public know what good*

*Your local newspapers receive
modern plumbing and many
shop through effective ad*

*Actuated by a spirit of co-
advertising cuts and copy
will attract the favorable
service is entirely free; you
paper space. This small cut
will pay you many times*



Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms
119 KING ST. EAST

W. H. R.
405 R.

ING BUSINESS

*goods in the world for sale,
ke no sales.*

*per with Plumbers who let
ing is and make them want it.*

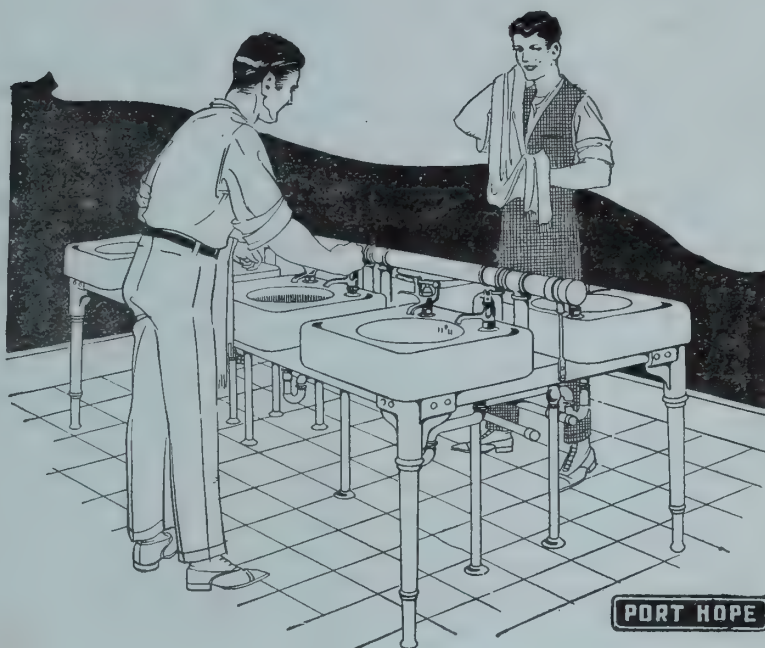
*eds of prospects who need
n could be brought to your*

*, we offer a free service of
in your local paper this copy
that brings business. This
ly the small charge for news-
investment that, persisted in,*

The Free Cut Service

If you have not already received one, we will be glad to send you a folder containing illustrations of these advertisements conveniently numbered for ordering. Always order by the number.

These are attractive, well-planned, effective advertisements, but you are quite free to change the copy if you like. The illustrations cannot be improved upon. They add to the attractiveness of your advertisement just as a display creates interest in a window previously empty.



Give Your Employees A Chance

to wash the grime of toil away before leaving the factory—readily and under pleasant conditions.

Good lavatory and sanitary arrangements always command the respect of the men, and where there is respect there is a better spirit and better work.

We are well equipped to carry out all kinds of plumbing work according to the most approved recommendations of the Health Authorities—in the home as well as in the factory. Let us give you an estimate on any changes you might like to effect.

Your Name and Address Here

lfg. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

News From Here and There---Continued From Page 19

WESTERN ONTARIO NEWS

Dr. Lloyd Moffatt, Dundas and Waterloo Sts., London, Ont., wants prices on hot air heating, complete modern plumbing and individual electric lighting system for \$15,000 country home to be built at Varna, Ont.

A. E. Shortt, 1200 York St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new \$3500 dwelling.

Williams & Roberts, Tecumseh Ave., London, Ont., have been awarded contract for heating and plumbing for new \$9000 residence for J. B. Hay.

The council at Wheatley, Ont. plans to submit a by-law to the ratepayers shortly to raise \$35,000 for a new continuation school.

Plans are to be prepared at Wallaceburg, Ont. for a new high school to cost \$50,000. Rev. M. C. Tait secretary of school board.

Noble and Rich, of London, Ont. were awarded contract for the heating and plumbing in connection with new \$65,000 hospital at Chatham, Ont.

The ratepayers of Tilbury, Ont. have passed a by-law to provide \$30,000 for extensions to the watermains. Plans prepared by Town engineer Heidler will be presented to the Provincial Board of Health for approval and tenders will be called early in August.

The Wright Teale Plumbing Co., of London have been awarded plumbing and heating work in connection with new \$9000 residence being erected for John Putherbough.

BUSINESS CHANGES

Amherstburg, Ont.—Raymond Ryan has purchased the plumbing and heating business formerly conducted by Ryan & Co.

STANDARDIZED PLUMBING WILL HELP SOLVE

HOUSING PROBLEM

Fireproof homes, built to last, and standardization of plumbing supplies and builders' hardware were given as partial solutions of the housing problem by Dr. J. W. Stratton, director of the National Bureau of Standards at Washington, in an address to the New York Building Congress. Dr. Stratton said the greatest waste of housing was caused by fire, and this had an unquestionable effect on the shortage of homes.

"Recently I returned from a trip abroad, where I inspected the homes being erected there and which have been erected in the past for the laboring classes," he said. "Those houses are of fireproof construction and are built to last. The construction which has been going on in this country has been almost entirely of wood. Such houses will disappear in a few years."

The New York Building Congress, a branch of the National Building Congress, has been in process of formation for several months. Engineers, architects, builders and plumbers are its members.

WATERWORKS PLAN

RECOMMENDED

Islington, Ont.—The much debated Long Branch waterworks scheme furnished material for another heated discussion before the Etobicoke Township Council. After a lively two-hour period, the Council passed a resolution recommending that plans and specifications be prepared and laid before the Provincial Board of Health. This represents the first step in the undertaking. The Board of Health has to be approached for sanction to put an intake pipe out into the lake.

PRAISES WOODSTOCK

DISPOSAL PLANT

Woodstock, Ont.—Provincial Engineer Dallyn, of the Provincial Board of Health, of Toronto, met members of the city council and the Board of Health. The meeting was called to deal with the solution of the nuisance which has been created through the emanation from the sewage disposal plant, of most offensive odors, during the past few weeks. A lengthy discussion took place, in which not only the sewage disposal plant, but also the city garbage dumps, came in for much consideration. Engineer Dallyn addressed the gathering at some length concerning the sewage disposal plant. Nothing of a definite nature was done, since the engineer assured the meeting that his inspection of the plant caused him to believe that all difficulties, and conditions causing the stench which has been so strenuously objected to, are now practically at an end. He said that the plant is a good one and quite capable of handling the city's sewage satisfactorily. The location is satisfactory, and there is no reason why the repairs to the plant having been made, there should be any further trouble of a serious nature.

SASKATOON PLUMBERS'

STRIKE IS OFF

Saskatoon, Sask.—Officials of Local 264 of the United Association of Plumbers and Steam-Fitters have affixed their signatures to the agreement submitted by the Saskatoon Society of Sanitary and Heating Engineers on May 1. This action officially put an end to the strike that has existed since the agreement was presented to the workers and rejected. The relations between the proprietors and men in Saskatoon have for years been unusually amicable and pleasant, and the entente cordiale has not been particularly disturbed during the period of the strike.

The cleavage originated in the cities south, and the members of the Saskatoon local went out on instructions from their provincial body. The employers in this city did not, therefore, consider it as a personal difference, and no bitterness was engendered.

They were no less firm, however, in insisting that their trade must make its

contribution to the general reduction in building costs, and the cost of minor repairs as well. They felt that the men were most ill-advised in going to the length of a strike to uphold higher costs, when the general trend is downward and public sentiment impatient of all attempts to hold up the cost of living.

As evidence of their sincerity in this contention the agreement submitted to the men called for a reduction in price to the consumer of twice the amount of the reduction to the men, bringing down the cost to the householder to \$1.25 per hour.

NEW BENDING SPRING



Messrs. W. H. Cunningham and Hill Limited are putting on the market a new style Bending Spring for which the makers claim many advantages as follows:

It is made from special flat faced oil tempered steel wire which makes possible a smooth bend without wrinkling the pipe.

The edges of the wire are slightly depressed below the surface, so as to facilitate withdrawal from bends.

A simple arrangement is provided by which the spring cannot be stretched so far as to injure it in pulling out.

The Spring is so designed that by slightly twisting the handle to the left it contracts and is easily removed from the pipe.

NEW FIRMS

Indian Head—T. L. Never has commenced the plumbing business.

TORONTO PLUMBERS DO NOT WANT LOWER SCALE

Toronto—Plumbers and steamfitters refused at their meeting in the Labor Temple to accept a wage reduction of 10 cents an hour, as was proposed recently by a conference of the interests of the building trades industry.

PLAN \$300,000 OF

SANITARY SEWERS

London, Ont.—Plans for a \$300,000 system of sanitary sewers for the London industrial area have just been completed. The sewers will not only serve the Pine Lawn district, it is stated, but will drain the whole Ealing district and London's industrial area.

Debentures will have to be issued for at least \$225,000 of the proposed improvement, and this matter will probably be put to a vote of the people at the next municipal election, which will be held on December 5.

The proposed development, it is pointed out, will be one of the final links in the chain of industrial area development that has been worked towards for some years past.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

ANOTHER heavy table of price recessions on commodities and supplies affecting the plumbing and steamfitting trades again features the current markets. Quotations on Portland cement are lowered, and a readjustment of discounts to a lower level on stoves and furnaces is of particular interest at this season. Corrugated sheet prices have been again reduced on all gauges, while a revision is also announced on seamless boiler tubes. Other price recessions include bath and basin fixtures, and a further change in discounts on standard

and removable disc radiator valves. Bar iron and steel, and black and galvanized sheets are generally reflecting easier tones, and in some cases reduced quotations.

A further revision has been recorded in the discount quotations on standard upright and wall radiators, this change being in the nature of an increase as the price reverts to the level existing before the previous change. Discounts on other radiators and on water and steam boilers are maintained at the recent levels.

MONTREAL

MONTREAL, August 3.—Many important changes are recorded in the markets of plumbing supplies, the feature being in the line of an advance. Radiators, through a change in discounts, are advanced in price, quotations being raised to levels quoted before the decline of July 2nd. The feature decline is on bar irons and steels, most lines are reduced 15 cents, however, common bar iron underwent a second reduction of the same amount and is now 30 cents per 100 pounds cheaper. Reflecting from the easier tone of iron and steel products generally, is the lowering of black and galvanized sheets in some quarters, and an adjustment of boiler tube prices. Solders are quoted one cent lower in bars, wire solder is reduced 1½ cents.

There has been no improvement in conditions prevailing on enamelled ware, distributors of these lines report the market is still very unsettled. This condition also prevails on compression goods and range boilers, although prices on the latter were considered below productive costs when the new list of prices were given a few weeks ago. Ingot metals are reported irregular, tin and copper again showing easier.

New Pipe List Brings Little Improvement

Montreal—

The new list No. 52 issued on wrought iron and steel pipe, makes the fifth change in quotations on piping since the beginning of the year. Each new set of prices has shown a lowering, the tendency of which is not altered at present. Iron and steel products generally have been recorded with an easier tendency in the past few weeks, but there seemed to be an uncertainty as to whether piping would be included in the lower levels quoted. However, this commodity responded sooner than many other lines.

Little, if any improvement, is evidenced in the past few weeks on sales, the movement being very sorting and mostly of the smaller sizes. Following is list No. 52, which are net prices, the usual 5 per cent. now being cancelled:

Price List No. 52

July 11 1921

Standard Butt-weld Pipe

Size	Per 100 feet			
	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
¾ in..	\$ 6 50	\$ 8 50	\$	\$
1 in..	4 56	6 60	5 76	7 80
1 ¼ in..	4 56	6 60	5 76	7 80
1 ½ in..	5 87	7 40	7 56	9 10
2 in..	7 02	8 97	9 55	11 50
2 ½ in..	10 03	12 92	13 77	16 66
3 in..	13 57	17 48	18 63	22 54
3 ½ in..	16 23	20 90	22 28	26 95
4 in..	21 83	28 12	29 97	36 26
4 ½ in..	34 52	44 46		
5 in..	45 14	58 14		
5 ½ in..	59 80	75 44		
6 in..	70 85	89 38		

Standard Lapweld Pipe

Size	Per 100 feet.			
	Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.
2 in..	\$25 53	\$31 82	\$33 67	\$39 96
2 ½ in..	38 03	47 97	50 90	60 84
3 in..	49 73	62 73	66 56	79 56
3 ½ in..	60 72	76 36	80 96	96 60
4 in..	71 94	90 47	95 92	114 45
4 ½ in..	81 28	102 87	112	133
5 in..	94 71	119 88	130	155
6 in..	123	156	169	202
7 in..	164	209	221	263
8 L in..	173	220	233	275
8 in..	199	253	268	317
9 in..	238	304	321	380
10 L in..	221	282	298	352
10 in..	284	363	383	453

Price Competition Still Exists On Enamelled Ware

Montreal—

There seems to be no improvement in price in the local market conditions on enamelled ware generally. While discounts quoted are 20 and 10 per cent. off list lower prices are given from practically all quarters. One large jobber stated to Sanitary Engineer that conditions in enamelled ware have not been on a stable basis for some time past; but rather than hopes of recovery being realized the situation developed from week to week more unsteady.

A revival of business activity would undoubtedly assist towards a more settled market but it now required closer co-operation of all interested in the trade to return conditions to a sound steady basis. A slight increase in the volume of orders lends a little more hopeful outlook, but sales are still below expectations, in most quarters.

Little Improvement In Closet Sales

Montreal—

Sales in closet outfits and fixtures are still small, but with some improvement noted in the past two weeks. As in the case of enamelled ware in general, market conditions are far from settled, notwithstanding current prices were reduced 10 per cent. last month.

Price Competition Also Touches Compression Goods

Montreal—

Discounts on the different lines of valves and bibbs are nominally unchanged but a rather unsettled feeling is still existent among the jobbing houses, with the result that lower figures are quoted on different lines. Current sales are small and numerous, but leaving the volume of business below expectations.

Sorting Movement of Fittings

Montreal—

No further revision is recorded on the price of the different kinds of pipe fittings since the changes announced on nipples and couplings shown in the new wrought pipe list two weeks ago. There is little or no change to record in the movement of fittings, sales being small and of a general sorting character. Following are present discounts:—

Fittings—

Cast iron fittings.....	20 p.c.
Bushings, cast.....	30 p.c.
Bushings, malleable.....	30 p.c.
Flanges.....	27½ p.c.
Plugs.....	22½ p.c.
Flange Unions.....	20 p.c.
Malleable Unions.....	40 p.c.
Dart Unions, black.....	29 p.c.
“ galvanized.....	8 p.c.
Nipples ½ to 4 in. close and short.....	45 p.c.
“ long.....	55 p.c.
Nipples Running Thread.....	25 p.c.
“ 4½ to 8 in close and short.....	35 p.c.
“ long.....	45 p.c.
Couplings 4in and under.....	25 p.c.
“ 4½in and larger.....	5 p.c.

Pound Goods—

	Blk.	Galv.
Class B.....	0 20	0 28
Class C.....	0 13	0 20
Add 10 per cent.		

Boiler Prices Unsteady

Montreal—

With the list of prices on all sizes of range boilers unchanged, much the same condition prevails on these as on enamelled ware in plumbing supplies. A marked reduction was recorded some weeks ago, when it was anticipated a steady market would follow, as the new prices were considered very low. Such has not been the case, however, and at present a quotation of \$7.50, and even lower, is given on the 30 gallon standard boiler, this being the prominent selling size. Sales are fair, being small but of fair volume.

Satisfactory Movement of Eave-trough

Prices and discounts remain unchanged in eave-trough, conductor pipe and elbows, with sales continuing in good volume although a slight falling off is not-

ed from the movement in the earlier weeks of this month and in June. This is said to be a reflection from the farming trade who are now busily engaged, and a resumption of activity is expected in the fall months.

Adjustment in Boiler Tube Prices

Montreal—

Boiler tube quotations are now adjusted, with lower levels on all sizes of the seamless tubes, while on the lapweld the prices are slightly advanced with the exception of the 3 inch. This size being also reduced. The trend of boiler tube prices has been downward, in line with other iron and steel products, and the reductions now recorded follow the lowering of other lines in the past two weeks. New prices are as follows:—

Boiler Tubes—	Seamless	Lapweld
1 inch.....	25.00	
1¼ inch.....	26.00	
1½ inch.....	25.00	
1¾ inch.....	28.25	27.00
2 inch.....	27.80	23.00
2¼ inch.....	31.35	26.00
2½ inch.....	39.65	28.00
3 inch.....	46.80	33.00
3½ inch.....	60.35	41.00
4 inch.....	81.00	51.75

Soil Pipe Prices Hold

Montreal—

The volume of sales on soil pipe and fittings is recorded as seasonable and quite satisfactory, orders being small but numerous. No change is made in quotations, although many other lines of iron and steel have responded with lower prices to the general easier tone. Following are unchanged discounts:—

Soil Pipe— (Medium and Extra heavy)
2, 3 15 p.c.; 5 and 6-inch, 20 per cent
8 inch, add 5 p.c. to list

discount
4-inch 25 p.c discount.

Fittings—

2 to 6 inch fittings 40 per cent. discount.
8-inch, net.

Bar Iron Reduced to \$3.40 Base

Montreal—

Following the announcement of reduced prices from the Southern mills, iron and steel bars are now quoted at lower levels. Reports from the Pittsburgh mills were to the effect that the base price on plates, structural shapes and bars would be \$2.00 a ton less bringing the new quotation of \$1.90. This was immediately reflected on the local market when practically all lines were lowered approximately 15 cents per 100 pounds.

Common bar iron immediately followed with a further decline of 15 cents bringing present prices down to \$3.40 base. This latter reduction is more in the nature of a local adjustment among some jobbing houses, while others again are maintaining previous level of \$3.55.

Local distributors state that business is quiet with little change from previous weeks. Buyers are not encouraged by the recent unsettled conditions, thus stocks are low, ample for present demand only. Following are the new local quotations:—

Common bar iron, 100 pounds..	3.40
Refined iron.....	5.05
Iron finish machinery steel.....	3.60

Mild Steel....	3.55
Single reeled machinery steel.....	5.50
Band steel.....	3.55
Spring steel.....	6.00
Sleighshoe steel.....	3.55
Tire steel.....	3.75
Toe calk steel.....	4.45
Harrow tooth steel.....	3.70
Mining tooth steel, per lb.....	0 23
Black Diamond tool and cast steel	
per lb.....	0 23

Cotton Waste Prices Unchanged

Montreal—

Quotations on the different qualities of cotton waste and wipers are holding unchanged, with satisfactory sales reported for the present season of the year

Radiator Prices Are Increased

Montreal—

Through a change in discounts, radiation prices are advanced, effective July 25th. Upright radiators are now less 53 per cent for hot water, 54 per cent for steam, and wall radiators are less 50 per cent, a change of three points being made in all three quotations.

This is the second adjustment of prices on radiation this month, on July 5th a reduction having been made. However the new discounts bring prices to the levels formerly quoted. Boilers remain at reduction on above date. Following are discounts now being quoted:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.
Discount, 53 per cent for hot water and 54 per cent. for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50 per cent.

Boilers—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 60 per cent off list.

Square or sectional hot water or steam boilers, 15 in., 10 per cent.

For Ontario Government trimmings, 5 per cent.

Square or sectional water boilers 19-in to 36-in., 10 per cent off list.

Square or sectional steam boilers, 19 in. to 36 in., 10 per cent. Ontario Government trimmings, 5 per cent.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

Steady Sales of Corrugated Sheets

Montreal—

Although not as fast as in June and the earlier part of this month, the movement of corrugated sheets is fair and steady. Quotations are held unchanged, the following list and discount being maintained:

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge	8 50
No. 26 gauge	9 25
No. 24 gauge.....	15 00
No. 22 gauge	16 00
No. 20 gauge	18 00
No. 18 gauge	24 00
Less 7½ p. c	
Lighter than 24 gauge and wider than 27 inch 75c. a square extra.	

Revision in Solder Prices

Montreal—

Quotations on all solders are reduced, bar solders to the extent of one cent per pound, wire solder, one and one-half cents. Metals, chief in the manufacture of this product, show no improvement on the primary markets, and tin is again reported easier after having recovered somewhat last week. Other lines of lead products are holding in price, although weak in tone. Following are local prices: Lead pipe, per 100 lbs. 12 50 Lead waste, per 100 lbs. 13 50 NOTE.—Lead pipe is subject to a discount of 10 p.c.

Lead traps and bends	10 p.c. off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs, sq. ft., lb.	0 10¾
Do., 4 to 8 lbs., sq. ft.	0 10
Cut sheets ¼c lb. extra and cut sheets to size ¾c lb. extra	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., Commercial, lb.	0 22
Do., wiping, lb.	0 23
Do., wire, lb.	0 35
Do., wiping, lb.	0 25¾
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

Narrower Range on Sheets

Montreal—

Galvanized sheets of the U. S. standard, and black sheets are now quoted with a narrower range, prices being lowered with jobbing houses that were formerly maintaining the higher levels. Sheets generally have had an easier tone in the past few weeks, and the reduction of the southern mills has now reflected to an extent on the local market, although some distributors have not yet lowered their prices since the announcement from the U. S. mills.

Business in sheets has now taken on the summer dullness, with little improvement expected until the later summer or early Fall months. Following are local quotations:

Bright Tin Plates—

20x28 X 100 lb. basis.	18.00 box
20x28 IC 112s.	18.50
20x28 IX 112s.	20.50
20x28 IXX 56s.	11.75
20x28 IXXX 56s.	12.50

Terne Plates—

20x28 IC 112s.	17.50 box
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Canada Plates—

Dull

18x24 X 52s.	7 25 box
18x24 X 60s.	7.35
18x24 X 75s.	7.45

Irregularity Continues In Ingots

Montreal—

Ingot metals continue somewhat irregular, tin and copper being a little easier again, while others hold at previous quotations. The slight firming that was noted on lead during recent weeks is not so evident this week, although the market on this metal can hardly be stated as weaker.

TIN.—After recovering somewhat last week over the previous declining period of two weeks, tin is again showing easier with local price declining one half cent. The market remains quiet with local price quoted at 34½ cents.

COPPER—This metal continues weak with little export buying, and domestic consumption very light. Local prices are unchanged at 17½ cents for electro, 17¼ for casting, but revisions would not be surprising in the very near future.

SPELTER.—East St. Louis has gained a little now being quoted at \$4.25, but business in this metal is very quiet with ample production to meet the small current demand. Local price unchanged at 7½ cents.

LEAD—The quiet period continues on lead in the U. S. A., with very little

change reported in the London market. The local demand for this metal is better than on other metals and a steady market prevails with quotation remaining at 6¾ cents.

ANTIMONY—There is yet no improvement in this metal and notwithstanding low prices production is still at a fair rate. Chinese is quoted at 7½ cents, high grade English 8½ cents.

ALUMINUM—Aluminum is held at easier quotation of last week with practically no change in market conditions. Local price 30 cents.

TORONTO

TORONTO, August 3.—Numerous price revisions in a downward direction continue to hold the centre of interest in current markets. Another fairly substantial list of changes includes quotations on bath and basin fixtures, Portland cement, stoves and furnaces, corrugated sheets, seamless boiler tubes, also standard and removable disc radiator valves, while a trend toward lower price levels has developed on galvanized sheets.

Radiator discounts are again changed, this being in the nature of an increase in price, the quotation reverting to the level which was in effect before the last revision. The lower list on range boilers still nominally prevails, with the revised prices on closet fixtures holding unchanged. The market on enamelled ware, however, is showing signs of unsettlement, with a readjustment in quotations being looked for in the near future.

Price Declines on Bath and Basin Fixtures

Toronto—

A reduction is announced this week in the quotations on nickel plated brass bath and basin fixtures; the new price on the 3-8 inch size being \$2.10 per pair. This is a reduction of 25 cents on the previous level.

Cement Prices Lowered On Barrels, 25 cents

Toronto—

A reduction in prices on portland cement of 25 cents per barrel now generally prevails. This revision falls into line with the recent efforts of various branches of industry, more or less directly interested in the building trades, to reduce wherever possible the cost of materials used in construction work of all kinds. Previous to the present decline, cement had been selling at very similar levels as prevailed last year, and this desire to bring all building costs and contributory price elements down to the lowest possible minimum, is attributed as primarily responsible for the announcement of lower quotations on cement.

Materials, including roofing and some lines of builders' hardware, have registered declines within recent weeks. Whether further price cuts will follow is considered problematical, as the effort to stimulate demand for building materials and simultaneously reduce the cost for such products, is under certain limitations. The labor cost is a vital factor, but with lower prices on cement now generally in effect, the revision is expected to act as a partial incentive to future construction activity.

Following are the revised local cement quotations:

Cement—

Car load lots, per br.	\$ 4.05
Less car lots, per brl.	5.20
Discount, 10 cents per barrel	
Single bags	\$ 1.45
Extra cartage charge of \$1.50 per load on less than 30 bag lots.	

Readjustment In Discounts On Stoves and Furnaces

Toronto—

Revisions in quotations on stoves and furnaces have now been announced by certain manufacturers. These discount changes approximately amount to reductions varying from 2½ to 10 per cent, as the decision now means a straight even discount rate of 5 per cent applying all the year round. This readjustment is variable on the different lines, the previous average scale of discounts being as follows:—June, 7½ per cent; July, 5 per cent; August, 2½ per cent; and September, normal.

This reduction is calculated to facilitate the principle of buying in smaller quantities, according to current requirements. Orders of this nature now generally prevail, and it is reported that the volume of bookings for stoves and furnaces has been somewhat disappointing. With the change now in effect, it is manifest that a more steady flow of orders should develop through the fall period.

The future degree of business in this direction is generally largely dependent upon the season's crop results. With a normal yield estimated throughout the Western Provinces, the stove trade is expected to be more or less stimulated thereby, but no marked degree of improvement is looked for until after the harvest returns are assured.

Corrugated Now Reduced in Price**Toronto—**

Following the lower quotations recently announced on the heavier gauges of corrugated sheets reductions are now evident in the lighter sizes also. The extent of the decline is practically \$1.00 per one hundred square feet on both the 28 and 26 gauges. Prices on the other sizes are maintained at the new levels effective two weeks ago. This revision completes another new list of quotations on corrugated sheets, and is in line with the recessions noted in the cost of many other classes of building materials. Market conditions for corrugated sheets at the present time, are reported not very strong. Dealers are of the opinion in some quarters that the new levels will have a tendency to stimulate current sales. On the other hand, the disappointing volume of building activity has served to deaden the future outlook. The revised prices are as follows:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	7 55
No. 26 gauge	8 25
No. 24 gauge	11 50
No. 22 gauge	14 00
No. 20 gauge	15 75
No. 18 gauge	21 00
Less 7½ p.c.	

Seamless Boiler Tube Prices Revised Downward**Toronto—**

A lower range of prices has now developed on seamless boiler tubes, the new quotations showing a reduction on the larger sizes from 2 in. up to 4 inch. The smaller sizes remain unchanged in price at the present time. It is pointed out, however, that all prices on seamless boiler tubes are more or less nominal at this time, depending upon the degree of competition evident on local markets. No change is yet recorded in quotations on lapweld tubes, such a condition hinging upon future price announcements from the Pittsburg steel mills. Following are the revised local prices:

BOILER TUBES	Seamless	Lapweld
1 inch	\$26 00	\$
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

Further Discount Revisions On Radiator Valves**Toronto—**

Discount revisions are again announced on standard and removable disc radiator valves. This is the third price decline noted on these products since June; the discount being changed a few weeks ago to 30 and 42 per cent respectively. Last week these figures were advanced to 50 per cent on both grades, and this has been still further revised to 58 per cent.

Prices on other compression goods remain practically unchanged, with very little improvement in current business having been recorded. Trade is reported just fair, with some prospects of fall building activity reflecting a brighter outlook. Following are the prevailing quotations:

Compression work, standard.....	37%
Fuller work, standard.....	30%
Bath cocks, compression.....	29%
Do., Fuller.....	25%
Flatway stop and waste cocks, standard	40%
Roundway stop and waste cocks, standard	34%
Brass steam cocks, standard.....	10%
Globe, angle and check valves, standard	5%
J. M. T.	20%
J. M. T. C.	25%
J. M. T. Gate Valves.....	15%
Gate or straightway.....	16-10%
Jenkins Globe.....	10-10%
Radiator valves, standard.....	58%
Do., removable disc	58%
Emco J. D. Valves.....	20%
Emco Check Valves.....	20%
Webber Gate Valves.....	20%

Basin Cocks

No. 1 and 1, Fuller pattern.....	30%
Quick opening No. 3633.....	37%

Radiator Discounts Again Changed**Toronto—**

A further revision in radiator discounts has now been announced which reverses quotations to the level which existed previous to the last price change just four weeks ago. The present discount list therefore is in the nature of an increase in the prevailing prices on standard radiators, as the quotation off list on these two items has again been lowered to 55 per cent for water, and 54 per cent for steam. This is a four point recession in the discount rate applying to these products.

Wall radiator figures show a similar change, the discount being again reverted to 50 per cent.

Quotations on Hospital sizes are maintained at previous levels, while the discounts on water and steam boilers, both round and square, are unchanged from the new prices recently announced.

Business is reported as having picked up slightly, but whether this condition has been due to price changes or to an improvement in the markets generally, is hard to determine. It is noticeable that this constitutes the third price revision on radiators during the last two months, and current quotations are said to be fluctuating more or less from day to day. The following, however, are the official nominal quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in. \$1; 32 in. \$1.10; 30 in. \$1.15;
26 in. \$1.20; 23 in. \$1.26; 22 in. \$1.30;
20 in. \$1.36; 18 in. \$1.40; 16 in. \$1.50;
14 in. \$1.55; 13 in. \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent for water and 54 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent for water and 49 per cent for steam.

Discounts on 1-column hospital size, water 30 per cent; steam 31 per cent.

Wall Radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—**Water:**

Round.....	60% off list
Square.....	10% off list

Steam:

Round.....	15% off list
Square.....	5% off list

Revised Closet Prices Hold**Toronto—**

Revised quotations on closet outfits recently announced, still remain unchanged. Whether this condition will hold for any length of time is stated as problematical, due to the general unsettled tone of the markets on this class of supplies.

Readjustment Looked For In**Quotations On Wares****Toronto—**

While there is little new to report as regards the current volume of sales in enamelled ware, yet it is evident that market conditions are showing signs of unsettlement. The prevailing official discount of 20 and 10 per cent has been rendered purely a nominal figure, price shading in jobbing circles have recently developed. This has led to the feeling in the trade that prices are due for a readjustment in the near future. It has been stated that should this develop, a more satisfactory market would again prevail. Following are the present nominal quotations:

Stove Pipe Wire Quotations**Toronto—**

In the new quotations on stove pipe wire, announced in the last issue of Sanitary Engineer, the current reduction of 25 cents was not made. The correct prices, which should have appeared, are as follows:

No. 18 ga.....	\$8.75 per cwt.
No. 19.....	9.25 per cwt.

Soil Pipe Revisions Hold**Toronto—**

Recent revisions in the discounts on soil pipe and fittings correspond to price deflation evident in quotations on most tubular goods. The new price levels are being well maintained, and in some circles a slight increase in the current volume of business is recorded. This is, however, not enough to show whether conditions have improved generally, but the opinion is expressed that if the recent efforts to stimulate activity in the building industry eventually has the desired results in boosting construction during the late summer and fall periods, such a situation would be reflected in the market tone on soil pipe and fittings. Up to the present, however, the degree of home building is not so marked as earlier predictions anticipated. Following are the revised quotations:

Soil Pipe

2 and 3 in., 25%

4 in., 30%

5 and 6 inch, 30%

8 inch, net.

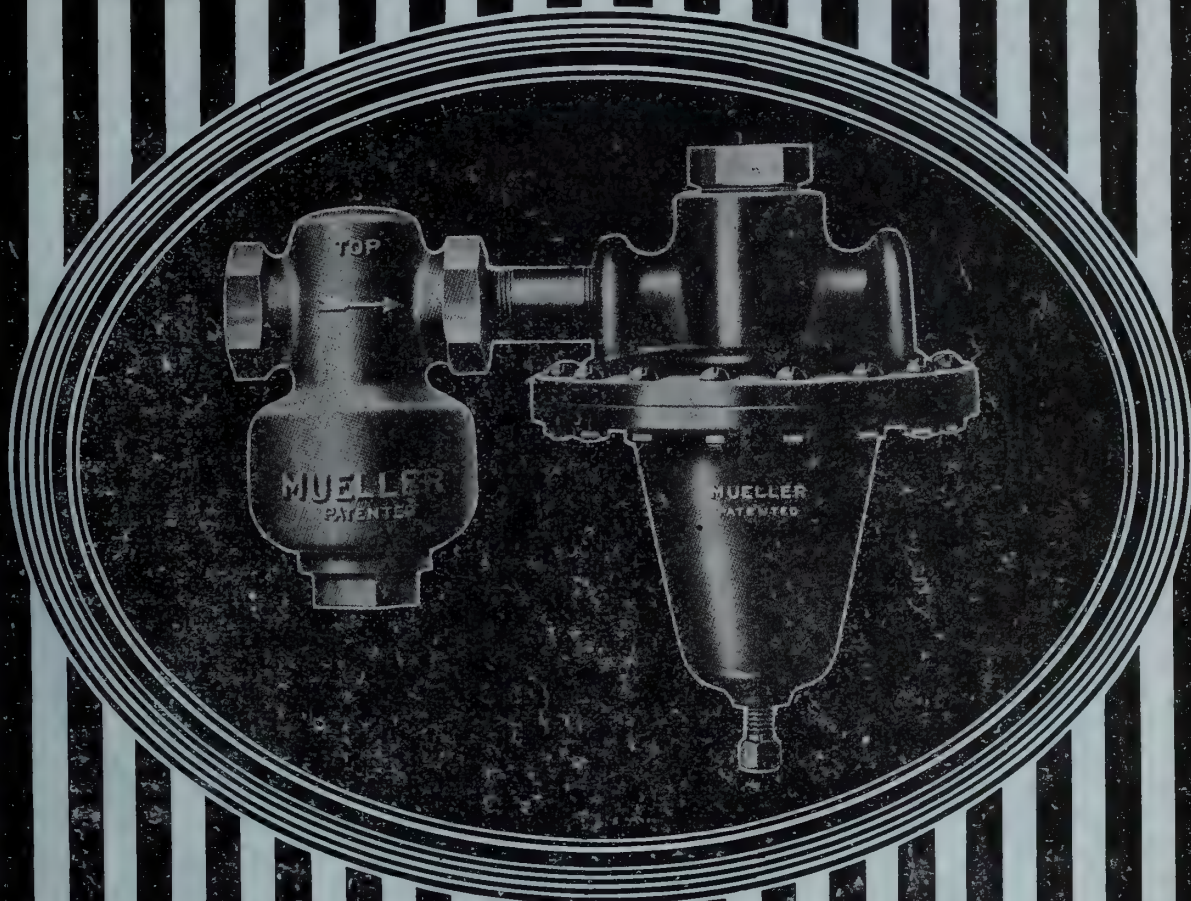
Fittings

2 to 6 inch fittings, 40-10%

8 inch fittings, net list.

Prices On Sheets and Plates Vary To Lower Scale**Toronto—**

While the customary midsummer dullness still covers the market for sheets and plates, there is a larger volume of inquiry noted. Although no marked improvement has been recorded in current business, yet orders have recently been



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of a much wider range of distribution, with purchases still being small.

Conditions on annealed plates and black sheets remain practically unchanged with the recent price revisions holding fairly well. But in the case of galvanized sheets, a wider range in quotations has now developed, due to aggressive competition among dealers. Prices now vary among the jobbing houses, and in one quarter the lowest figures shown on galvanized sheets in the appended tables, are 25 cents higher on all gauges than the new reduced level quoted by this distributor. The decrease is not included in the attached list, however, as this decline is apparently not yet general. The list shown contains the average prices compiled from a varying range of dealers' quotations.

Reports from the U. S. steel markets indicate the prevalence of similar conditions existing there. Plates and structural shapes are said to have been offered by Belgian and German mill at Atlantic ports, with even duty paid, at prices ranging below the American official list. These European offers, however, have failed to develop any business in U. S. territory, principally because of the addition freight charges to inland points and also due to the fact that American producers and manufacturers are already lowering prices in order to maintain their present markets. This drive for business is said to have brought about deeper cuts in quotations on black and galvanized sheets. Whether the local tendency to shade prices is a direct reflection of the southern temperament in this direction, and whether the majority of local distributors will probably follow suit, is considered as hinging upon the strength or otherwise, of future markets. It is generally felt, however, that buyers of steel, especially plates and sheets, are not particularly well satisfied with the current price situation. Several supposedly authentic predictions have been made to the effect that the recent decreases were not the "final" declines, and purchasers are evidently disposed to look ahead for the "next" reduction. Conditions seem so unsettled, however, that distributors hesitate to express any opinion as regards future prices. It is admitted that those who purchase now, buy because they cannot wait, and in most cases very prompt delivery is assured.

An extra is now charged on galvanized sheets, 10 $\frac{3}{4}$ oz., and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Lower Levels Still Evident In Range Boiler Prices

Toronto—

In spite of the frequent indications that a new list on range boiler prices would be announced in the very near future, the lower quotations have now remained in effect for practically two months. Last week the change to slightly higher prices on range boilers was reported as imminent, manufacturers claiming that the existing levels contained no margin of profit for them. Dealers and jobbers however, have shown no strong desire to

stock up at these prevailing quotations, and prices are therefore, nominally unchanged as follows:

RANGE BOILERS

	Standard	Ex-heavy
30 gallon	\$ 8 75	\$11 50
35 gallon	9 50	13 80
40 gallon	13 80	16 50
52 gallon	20 40	25 20
66 gallon.....	28 08	34 80
82 gallon	36 00	47 40
100 gallon	45 60	56 40
120 gallon	55 20	64 80
144 gallon	78 00	93 00

Solder Quotations Maintained

Toronto—

Fluctuations recently in evidence on the primary lead and zinc markets are quoted as too erratic and not of sufficient volume to immediately reflect on local prices. Quotations on lead and zinc products, therefore, are being maintained at previous levels. Prices on solder continue to remain at the lower levels recently announced. Little improvement in market conditions has been recorded.

Rumors Of Price War Noted In U. S. Steel Markets

Toronto—

According to reports received from U. S. Steel circles, rumors are now circulating the southern markets that a further reduction in steel prices is likely to be announced by certain Independent mills within the near future. Any such decline, however, is not expected to be as large as the revisions made early in July, but the efforts of various producers in seeking a price stabilization is stated as practically responsible for such anticipations.

Price shading has been general, even with the new official list in effect, and further decreases are dependent upon the extent to which this practice prevails. The Bethlehem Steel Company were the first in the field with an official announcement of lower prices which brought quotations down to levels which had nominally been in effect for several weeks. Similar conditions are now said to again predominate, but whether a new lower base price will be forthcoming is contingent upon the severity of existing competition.

The policy of the U. S. Steel Corporation has been to establish price reductions wherever they are formally announced and thus meet competition. Whether this will be adhered to cannot be ascertained. Similarly, it is said, that no denial of this report is officially obtainable.

The price war among the larger steel makers has become so marked during July that the markets are considered as almost unsettled as they were before the last price announcement. The result of this condition is that the confidence of buying consumers in future prospects has been practically destroyed.

Discounts Hold On Pipe Fittings

Toronto—

The revised quotations effective last week on wrought nipples and couplings, do not seem to have had any noticeable effect on the general market situation. Pipe fittings are still showing a fair movement, and these conditions are expected to govern the trade generally, unless a marked stimulus in building activ-

ity should reflect a spirited demand for these products

Lower Range Noted On Bar Iron and Steel Prices

Toronto—

The current steel situation continues to evoke considerable trade interest. While the recent price revisions still nominally apply on small orders, yet a range in quotations has generally developed through keen competition to secure more satisfactory purchases. Extensive inquiry seems to be the rule, with only a slight percentage improvement in market conditions, indicating that prices are now made more particularly to fit the quantity and conditions of each order. For instance, bar iron base is quoted in certain quarters at \$3.50, which is a 25 cent reduction on the lower figure recorded the week previous. The base price on angle iron also shows a range of 15 cents in the list derived from the various dealers.

It is frankly admitted, however, that future hopes of settlement in steel prices, primarily rests upon the extent of corresponding future revisions in freight rates and in wages. While labor is now showing a tendency to accept readjustments to a lower scale, yet no corresponding decline is evident in transportation charges. And with both the jobbing foundries and manufacturing consumers anticipating further price reductions owing to the present unusual condition of the steel markets, the temptation to meet offers half-way is the result. The opinion has been expressed that recent cuts in steel quotations are not the last that are likely to develop, and the spread of this viewpoint has been partly responsible for the failure of such price lowering to stabilize the markets. Another dealer stated that present price-cutting is in the nature of anticipating to a certain extent, future declines in freight and labor costs, which, if realized, will have a consequent vital bearing upon mill production costs.

What the markets primarily need, however, is a marked increase in demand, and this does not show signs of developing at the present time. The gradual liquidation of stocks, coupled with an improvement in the consumption of steel, are the prescribed tonics. A more optimistic viewpoint is permeating the trade that business might pick-up within the next few months; while one jobber expressed the opinion that the bottom of the steel depression has been reached and the turn to betterment now made.

Available markets for steel, give little support. The machinery business is reported dull, while railroad circles are doubtful prospects. Trading, as at present constituted, is for specifications absolutely required at once. The southern steel centres report that orders for future delivery are noticeably few, and this is taken to mean that consumers have been frightened off by the competition among Independent mills and the Steel Corporation, and many have decided to wait until prices and conditions are more settled. Rumors of such price wars give rise to the predictions that even lower figures are likely to prevail. But it is considered the plan in some producing quarters to reach a level where the various quotations can generally be looked upon as more or less permanent; while



MADE
IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

MI Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tapings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

Halifax—GEO. D. HATFIELD, Bedford Chambers
Life Building
St. John, N.B.—H. G. ROGERS, 147 Prince William St
Vancouver, B.C.—CYRIL AMES, Wilton Block
Montreal and Toronto—From Head Office, Guelph, Ont.

on the other hand, the concessions are said to have occurred in isolated cases where makers must secure some orders to keep their plant organizations intact. Apparently, the entire situation is more a question of consumers requirements, than of prices.

The list shown below therefore, contains the average price, with the range embracing various dealers' quotations:

IRON AND STEEL—

Mild Steel bars, base.....	\$3.50 to \$3.75
Mild steel bands 3-16" base	4.00 to 4.25
Bar iron, base.....	3.50 to 3.75
Angle iron, base.....	3.60 to 3.75
Horseshoe iron.....	4.10
Tire Steel.....	4.70 to 5.95
Spring steel.....	9.50 to 11.50
Crucible cast sheet steel	30.00 to 35.00
Mining drill steel.....	20.00 to 23.00
Cast tool steel, medium.....	20.00
Cast tool steel high grade	30.00 to 36.00
Sleigh shoe steel.....	4.10 to 4.50
Norway iron.....	15.00
Toe caulk iron.....	5.40 to 6.40
Hoop steel.....	4.75 to 5.00

Scrap Markets Apathetic

Toronto—

Consuming interest in scrap and waste materials has not registered any improvement. Demand is showing signs of falling even further away, if such a condition is possible, with trading still being dull. Present purchasing is generally along the lines of necessary requirements, which are few

Big Drop In Ingot Prices Compared With Last Year

Toronto.

A comparison of ingot metal prices of the present markets with the quotations which existed this time last year, brings to light an interesting situation. It is noted that copper, antimony and aluminum prices have registered declines of approximately 50 per cent since July 1920, while quotations on other metals including tin, lead, and spelter have been practically cut in half. The marked decrease in general manufacturing activity the consequent lack of demand, heavy stocks of scrap materials, and surplus supplies of certain ingots in the hands of both manufacturing plants, and rolling mills, are attributed as the primary reasons causing this effect.

COPPER—Copper continues to be extremely dull. The recent price concessions offered by U.S. producers, instead of stimulating sales, or serving to tone up the market has had the effect of making prospective buyers postpone purchases in the hope that quotations may thus be forced still lower. So far, however, there have been no indications of any additional recessions in prevailing prices. The local quotations also remain at 17½ cents.

TIN—An easier tone is recorded in the tin markets generally, but local quotations remain unchanged at the range recorded recently, namely: 37 to 38 cents

Reports from southern centres indicate that a better buying movement has been noted, but that has been chiefly confined to speculative interests and dealers, consumers showing practically no interest in offerings.

LEAD—Slightly unsettled conditions have appeared in lead circles. This is chiefly the easier tone which is noted on

the primary markets, and attributed to competitive business efforts on the part of American interests. The current demand is stated as being fairly persistent although no intensive activity is either looked for or recorded. Local quotations are maintained at \$6.75.

SPELTER—The price of this metal has again touched low levels on the southern ingot markets, but this condition is primarily caused by the efforts of small producers to dispose of current outputs in order to prevent, if possible, any addition to the present accumulation of supplies. As a consequence of this situation, it is said that large producers have withdrawn from the market but their absence

has failed to impart any strength to prevailing tone, since quantities offered are sufficient to cover present demand. The price of \$7.00 still prevails locally.

ANTIMONY—There is no improvement to record. Supplies are large, while demand is still light. Reports from the south indicate that price shading has been rumored, but quotations generally are unchanged, the local figures remaining at 8 to 10 cents.

ALUMINUM—The recent cut in values evident on outside markets, shows signs of being reflected in local prices. The dull period prevails, and nominally quotations remain at 30 cents.

WINNIPEG

WINNIPEG, August 3.—Wrought iron pipe, soil pipe and fittings, wrought iron nipples and couplings, and boiler stands, supply the current market changes in the nature of price recessions. Quotations on other primary products generally remain unchanged, with a quieter period in trading now noticeable, and the development of future business improvement depending upon the degree of activity in the building trades during the fall period.

Prices On Wrought Iron Pipe Revised Lower

Winnipeg—

A new list No. 52 has been issued on wrought iron pipe and prices are somewhat lower. Below is given list No. 52, effective July 11th:

BLACK PIPE f. o. b.

Size in.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat	Saskatoon	Regina	Brandon
	[Add to Winnipeg price]				
1/8 ..	\$ 5.40	\$.30	\$.20	\$.17	\$.11
1/4 ..	5.18	.53	.34	.30	.19
3/8 ..	5.31	.70	.45	.40	.26
1/2 ..	6.98	1.05	.67	.59	.38
3/4 ..	8.37	1.40	.90	.79	.51
1 ..	11.97	2.08	1.34	1.17	.75
1 1/4 ..	16.25	2.80	1.80	1.57	1.00
1 1/2 ..	19.40	3.35	2.15	1.88	1.21
2 ..	26.10	4.50	2.88	2.52	1.62
2 1/2 ..	42.35	7.18	4.60	4.02	2.68
3 ..	55.40	9.42	6.03	5.28	3.39
3 1/2 ..	73.08	11.25	7.20	6.30	4.05
4 ..	86.40	12.33	8.53	7.46	4.80
4 1/2 ..	99.00	15.61	10.04	8.75	5.62
5 ..	114.30	18.12	11.60	10.15	6.52
6 ..	147.60	23.45	15.00	13.14	8.44
7 ..	220.50	29.09	18.62	16.28	10.46
8L ..	233.10	31.25	20.00	17.50	11.25
9 ..	320.40	42.20	26.96	23.59	15.16
10L ..	297.90	40.00	25.60	22.40	14.40

GALVANIZED PIPE

Size in.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat	Saskatoon	Regina	Brandon
1/8 ..	\$ 8.55	\$ 0.30	\$ 0.20	\$ 0.17	\$ 0.11
1/4 ..	7.52	.53	.34	.30	.19
3/8 ..	7.65	.70	.45	.40	.26
1/2 ..	8.73	1.05	.67	.59	.38
3/4 ..	10.67	1.40	.90	.79	.51
1 ..	15.39	2.08	1.34	1.17	.75
1 1/4 ..	20.84	2.80	1.80	1.57	1.00
1 1/2 ..	25.02	3.35	2.15	1.88	1.21
2 ..	33.53	4.50	2.88	2.52	1.62
2 1/2 ..	54.32	7.18	4.60	4.02	2.68
3 ..	71.10	9.42	6.03	5.28	3.39
3 1/2 ..	91.80	11.25	7.20	6.30	4.05
4 ..	108.90	12.33	8.53	7.46	4.80
4 1/2 ..	124.20	15.61	10.04	8.75	5.62

5 ..	144.90	18.12	11.60	10.15	6.52
6 ..	187.20	23.45	15.00	13.14	8.44
7 ..	29.09	18.62	16.28	10.46	
8 ..	31.25	20.00	17.50	11.22	

Price Reductions Noted On Soil Pipe and Fittings

Winnipeg—

Reductions are announced in quotations on soil pipe and fittings. The new revised prices follow:

Soil Pipe—

- 2 and 3 inch, 20% off
- 4 inch, 30% off
- 5 and 6 inch, 25% off
- 8 inch, 10% adv.

Fittings—

- 2 and 3 inch, 40% off
- 4, 5 and 6 inch, 45% off
- 8 inch, 10% adv..

Wrought Couplings Reduced

Winnipeg—

Lower prices are quoted this week for wrought iron couplings and are as follows:

- 1/2 to 4", 20% off
- 4 1/2" and larger, net list.

Prices On Wrot Iron Nipples Also Lowered

Winnipeg—

The prices are also lower on wrought iron nipples and the following quotations now prevail:—

Close or Short—

- 4" and smaller 40% off
- 4 1/2" and larger, 30% off.

Long—

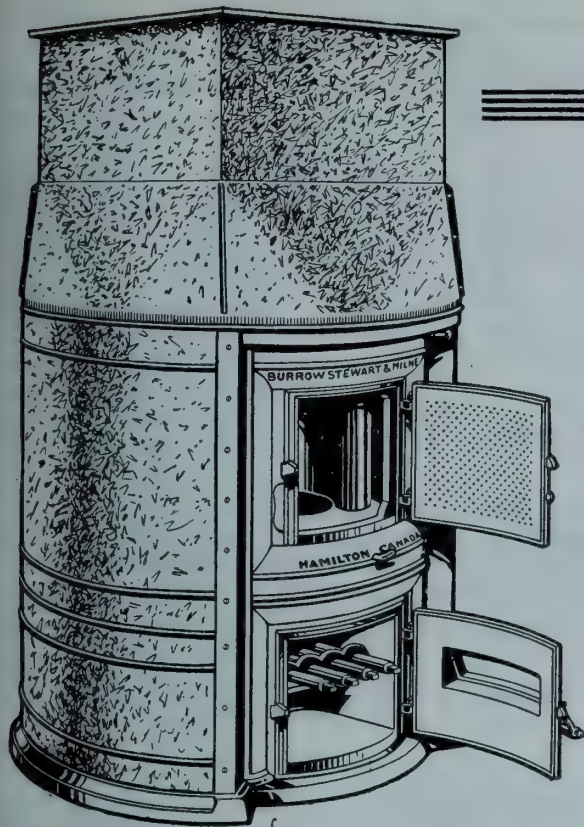
- 4" and smaller, 50% off
- 4 1/2 inch and larger, 40% off.

Quotations On Boiler Stands Reduced

Winnipeg—

Prices are lower on boiler stands and are quoted as follows:

12 inch	\$ 2.43
13 inch	2.56
14 inch	2.64
16 inch	2.84
18 inch	3.24
20 inch	3.74
22 inch	4.05
24 inch	4.45



Jewel Pipeless Furnace

The leader in the Pipeless Furnace field because, it has, first, been correctly designed in principle for perfect circulation by gravity; secondly, because the splendid design has been strongly backed up by the use of selected materials and the best of workmanship under expert supervision.

We honestly believe no better pipeless furnace can be produced, and doubt if it could easily be equalled.

If you are interested in giving your clients installations that will make friends and future business for you, investigate the Jewel Pipeless Furnace.

If you attend the Canadian National Exhibition at Toronto, we extend a cordial invitation to you to visit our exhibit in the Stove Building.

MANUFACTURED BY

THE BURROW, STEWART & MILNE CO.

LIMITED

Hamilton

Ontario

Range Boilers at Recent Decline Winnipeg—

Although an increase was expected in the prices of range boilers these are still holding at the following quotations:

30 gal.	\$10.00
35 gal.	13.25
40 gal.	16.25
52 gal.	23.50
66 gal.	32.75
82 gal.	40.00
100 gal.	50.00
120 gal.	60.00

Galvanized Sheet Prices Hold Winnipeg—

Changes made recently in the prices of sheets have remained firm and the prevailing quotations are given below:—

Galvanized—	
16 ga.	\$ 8.50
18 ga.	8.65
20 ga.	8.65
22 ga.	8.80
24 ga.	8.80
26 ga.	8.95
28 ga.	9.25
10 3/4 oz.	9.85

Black—

10 ga.	6.75
12 ga.	6.75
14 ga.	6.80
16 ga.	6.90
18 ga.	7.55
20 ga.	7.55
22 ga.	7.60
24 ga.	7.60
26 ga.	7.65
28 ga.	7.90

Fair Demand For Lead Products

Winnipeg—

The market tendency of all lead products remains firm, notwithstanding the recent weaker tone of pig lead. However, this is not yet reflected in the finished products. With the demand fair, prices are unchanged as follows:

Lead pipe, per 100 lbs.	\$12.06
Lead waste, per 100 lbs.	12.96

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WANTED TO PURCHASE IN Canada, a live Plumbing and Heating business. Apply Box 5, Sanitary Engineer.

SALES REPRESENTATIVE

WANTED FIRST CLASS HEATING Engineer who can also sell and handle salesmen. Give particulars of experience and salary expected. Apply Box No. 6, Sanitary Engineer.

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WANT TO BUY, RENT OR OPEN Sheet Metal or Plumbing Shop in Saskatchewan or Manitoba. Give particulars. Address Sanitary Engineer Box No. 76.

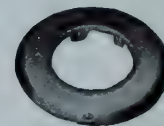


No. 4 B & C Automatic Air Valves

Fully tested and guaranteed. Cast brass base screwed and soldered on. A thoroughly reliable valve at moderate price. Insist on the "B & C."



No. 15
Hinged



No. 16
Solid with set screw



No. 17
Solid

B & C Floor and Ceiling Plates

Plates shown above are the narrow pattern specially designed for Canadian trade, suitable for twin connection or one pipe work. Made from cold rolled steel thoroughly copper plated and nickel plated.

Complete stocks carried by us; if your jobber cannot supply "B and C" products, write us.

W. H. Cunningham & Hill, Limited

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AND

WOLVERINE ONE-PIECE BATH AND BASIN SUPPLIES

Adjustable

Take less time to instal---
Give Permanent Satisfaction

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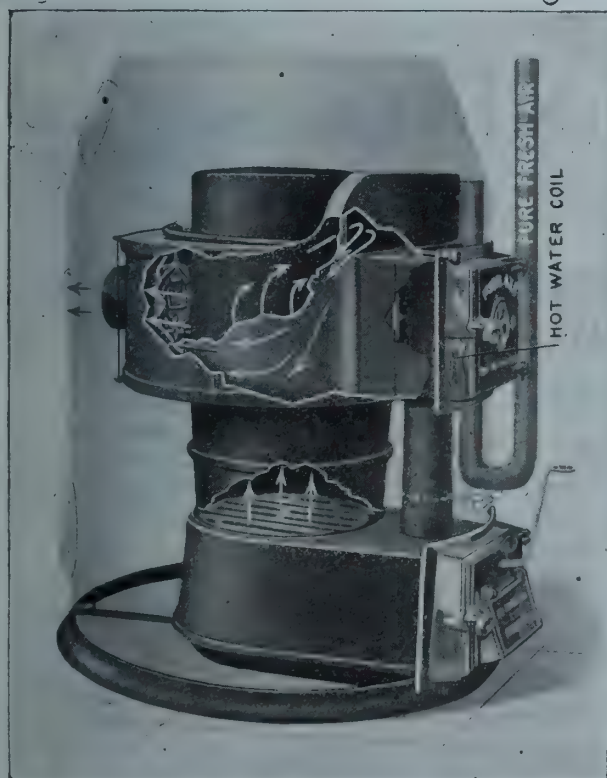
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We want you to know about this furnace; it will be good for your business. You can install Vulcan Pure Air Furnaces very profitably. We want you to know the details and what's in it for you. Write us today. Just put on a post card, "Vulcan Pure Air Furnace" with your name and address, address it and mail it to us. These reliable furnaces are economical, easy to operate, have a greater radiating service, and the heavy metal makes them very durable. Read what impartial users have to say for them:

London, Feb. 11th, 1921

Gentlemen:—

I have used the Vulcan Pure Air Furnace for several years. I find it economical on fuel, easy to operate, and as it has a greater radiating surface than any other in its class. I have been well pleased with the results. I can recommend its use to any. I believe it to be durable on account of the heavy metal in its construction.

DR. COPELAND.

London, Feb. 11th, 1921

Gentlemen:—

I wish to express my opinion of the Vulcan Pure Air Furnace. After five years' experience with it in my thirteen-room house, I can truthfully state it to be the most economical, durable and all round satisfactory furnace of its class made.

MR. C. H. SUMMER,
R. R. No. 8.

London, Feb. 10th, 1921

Gentlemen:—

I have been using the Vulcan Pure Air Furnace for the past five years. Have had thorough satisfaction in heating a twelve-room house in which I live. Have found this furnace very economical on fuel according to the amount of fuel consumed by other furnaces not doing the amount of work that this Vulcan does. I recommend this Vulcan Furnace to its full extent for economy, satisfaction and durability.

W. H. ROBINSON,

The Vulcan Co., Limited

London - Canada

Single Hub Pipe

Flat Bead

2, 3, 4, 5, 6, 8 Inch

Soil Pipes

AND

Fittings

Double Hub Pipe

Flat Bead

2, 3, 4, 5, 6 Inch



Quarter Bends

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SAVE ON

Coal, Cost of Installation, Shipping and Handling, Weight and Fittings

They are superior in design and arrangement; artistic in appearance. Steel tubing is thinner and more effective in radiation so that advantages in air circulation are gained. There are two flat, hollow castings, forming a top and bottom part, with tubes in-



serted—double tubes, one within the other. The water circulates between the two tubes and through the headers. They require less water to be heated, permitting a smaller furnace, and consequent fuel saving.

Write to-day, asking for literature which will make clear the large number of advantages in Victory Radiators.

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Kerr Valves

are well and thoughtfully designed. They are made from clear, sound castings, skilfully cast from correctly planned patterns that insure uniform walls in the castings. They are accurately machined and neatly and carefully assembled. Kerr Valves are strong, substantial, efficient and reliable.

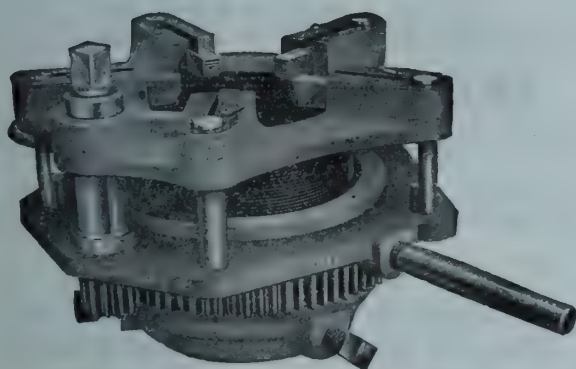
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Valve Manufacturers

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"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

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Pipe Threading Tools

In these effective tools the dies open out as the tool advances on the thread so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth.

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Pipe Threading Tools

Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble. They work easily, smoothly, rapidly and accurately. A. B. Jardine and Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

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269 Richmond St. W., Toronto, Ont.

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New Birks Bldg., Montreal Que.

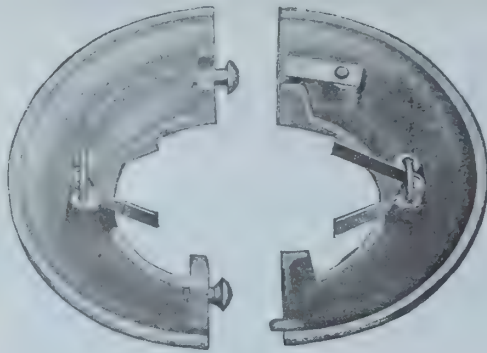
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High Quality at the Right Price

Split Ceiling Plates

The No. 10—A narrow Flange Plate—is a steel plate. Flanges $\frac{3}{4}$ " wide. Highly finished especially designed for twin connection "narrow".

The split ceiling plate is coming more and more into use than ever and always gives a nice finish, because it can be attached to mains and risers at the very last and is not exposed during completion of a building on the floors.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases. Write for catalog showing our complete line of specialties.

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New Britain, Conn.

Eastern Agents:

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New Birks Bldg.
Montreal

Western Agents

A. E. Hinds & Co
Chamber of Commerce
Winnipeg



Williams' Stillson Wrenches

Are sturdy and dependable—well balanced—positive in grip—powerful in action.

The tough teeth retain their sharpness; they "bite" instantly, yet release rapidly.

Wood and Steel Handle Patterns—eight sizes, 6 to 48 inches.

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"The Wrench People"

Formerly Canadian Branch of
The Whitman & Barnes Mfg. Co.

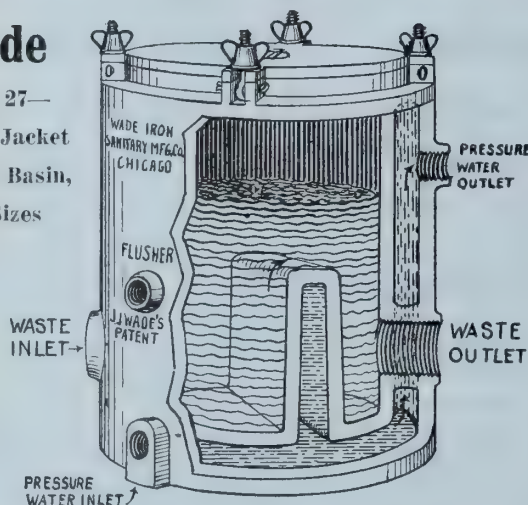
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Wade

B. Fig. 27—

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Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

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"The idea that a Weld could ever be perfect is quite illusory."

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Safety First

Specify Riveted Range Boilers

Toronto Hardware Manufacturing Co., Limited



True Economy Stack Heater

The Stack Gas Water Heater will heat water in one minute.

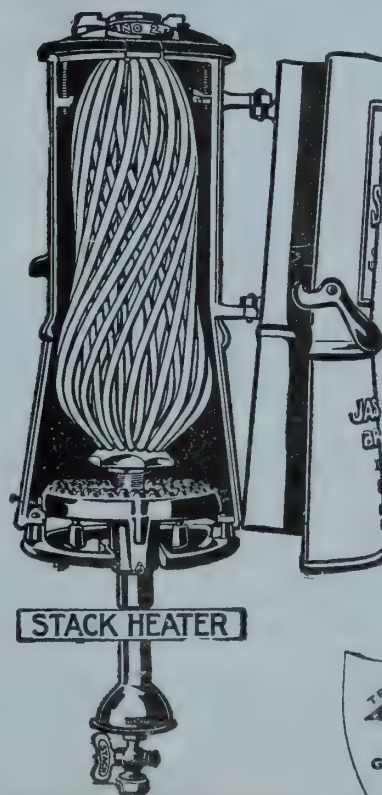
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Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

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The James Morrison Brass Mfg. Co. Limited
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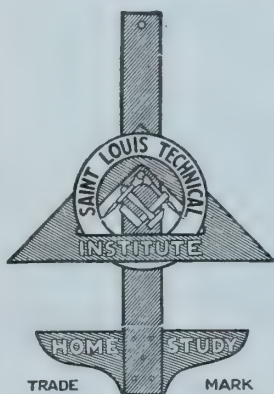
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WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

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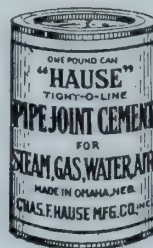
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Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

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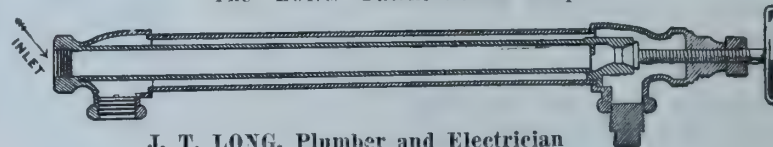
Empire Manufacturing Co., Ltd., London and Toronto

The London Engine Supplies Co., London

It's advantages are many
There is no possibility
of freezing if it is set so
as to drain.

Requires no valves except those which control the admission of steam to the apparatus to which the trap is attached.

The "LONG" Patent Steam Trap



J. T. LONG, Plumber and Electrician
127 4th Ave., Maisonneuve, Montreal.

Regulated to work
against 1 and 200 pounds
pressure

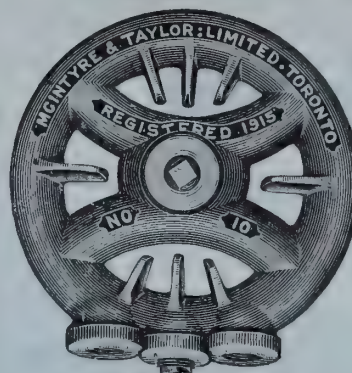
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1500 feet of one inch pipe.

Write to-day about it's
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INDEX TO ADVERTISERS

Amherst Foundry Co.	Inside front cover
Anthes Foundry Co., Ltd.	8-9
Atlas Tank Works	38
Bastian Morley Co., Ltd.	3
Beaton and Cadwell	36
Burrow, Stewart & Milne	31
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products	40
Chamberlain Desolvo Co.	39
Crane, Ltd.	4
W. H. Cunningham & Hill Co. Ltd.	32
Dennis Wire & Iron Works Co., Ltd.	3
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co.	Outside front cover
Fitting, Ltd.	40
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	40
Gurney Foundry Co., Ltd.	6
Hall Zryd Foundry Company, Ltd.	Inside Back Cover
Hause Mfg. Co., Chas. F.	40
Hourd & Co.	40
Hoyt Metal Co.	38
International Malleable Iron Co.	29
Jardine & Co., A. B.	35
Katie Foundry	40
Kerr Eng. Co., Ltd.	35
J. T. Long & Co.	38
Lord & Burnham	5
Marks & Co.	40
McIntyre & Taylor, Ltd.	39
McDougall Co., R.	7
Montreal General Tool Co.	34
Morrison Brass Mfg. Co. Ltd., Jas.	37
Mueller Mfg. Co. Limited, H.	27
Port Hope Sanitary Mfg. Co., Ltd.	20-21
St. Louis Technical Institute	38
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	40
Toronto Hardware Co.	37
Vulcan Co., Ltd.	33
Wade Iron & Sanitary Mfg Co.	36
Warden-King, Limited	34
Welch & Co., A.	40
Williams & Co., J. H.	36
Wolverine, Ltd.	33
Want Advt.	32



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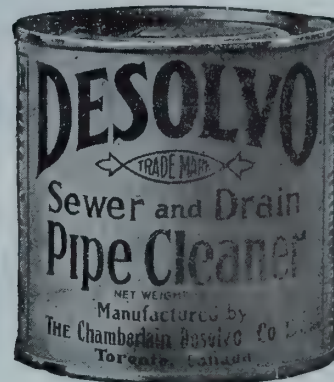
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Clears Clogged Pipes

This Time-and-Money-Saver for the plumber clears clogged or frozen pipes promptly, and does a better job in less time.

This means money saved, and increased profit, on every job where frozen or clogged pipes must be cleared.

It will pay you to keep it on hand, not only to shorten your own work on such jobs, but for profitable sales to your customers.

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Plain****Closet
Bend**

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



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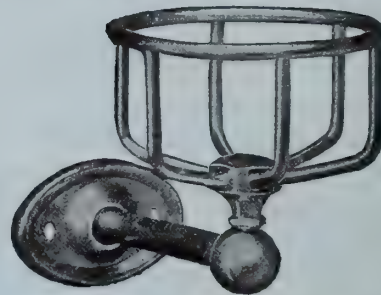
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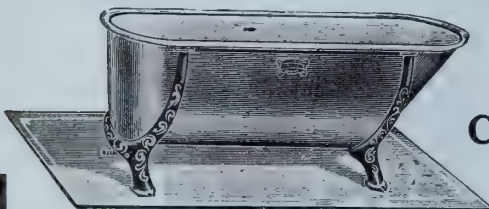
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Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

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THE GENDRON MFG. CO. Ltd., TORONTO**PROFITS
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—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

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*Manufacturers of
Malleable and Cast
Iron Pipe Fittings*

Oshawa

WROUGHT PIPE



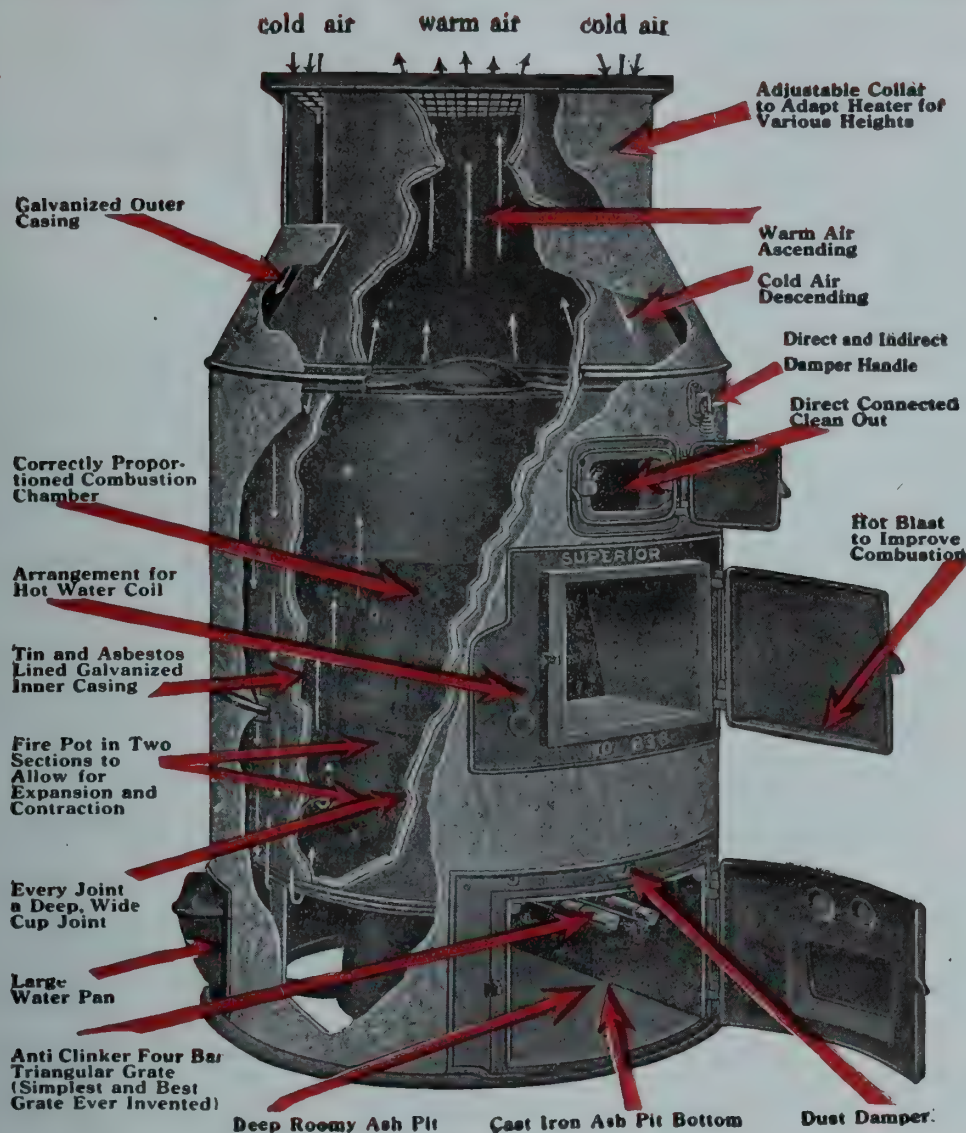
Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask Your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal



PILOT SUPERIOR PIPELESS

The Leader in the Pipeless Furnace Field. The diagram here explains fully the remarkably efficient design that makes the Pilot the most effective pipeless furnace on the market.

This installation is easy to make. Only one hole to cut in the floor; no fussy, messy, tangle of pipes to consume valuable space in the cellar.

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Hespeler - Ontario

Western Branch: Post Office Box 687 Winnipeg, Manitoba

SANITARY ENGINEER, PLUMBER AND STEAMFITTER

PERFECTO

OIL REGULATED

Flush Valves



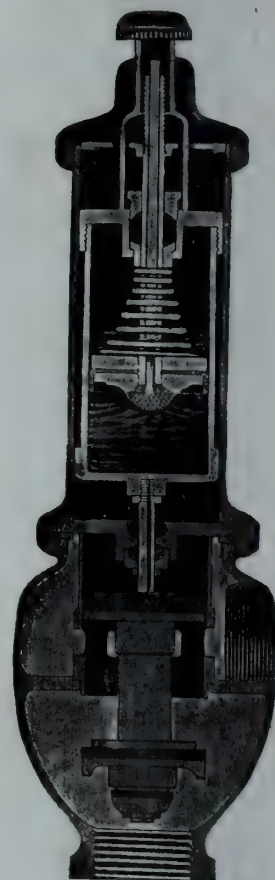
PerfectO Oil Regulated Flush Valve in combination with syphon jet, side inlet bowl—a style most suitable for dwellings, apartment-houses, office buildings, etc.

This High-Grade Fixture Now Made in Canada

EVERYONE interested in up-to-date, high-grade sanitary equipment will be pleased to learn that the fitting, formerly known as the Brook's Oil Regulated Flush Valve, is now being made in Canada under the name of the PerfectO Oil Regulated Flush Valve. This valve differs from the old type of flush valve in that its action is regulated by oil, with all vital working parts immersed in oil. This means that the by-pass cannot become clogged by mud, sand or any foreign substance and insures absolute freedom from trouble and repairs. The PerfectO Oil Regulated Flush Valve is recognized as the most modern, efficient and economical type of equipment—made to stand more than the usual amount of wear and tear. The same care and accuracy exercised in the making of all PerfectO lines, guarantee the perfect construction of PerfectO Oil Regulated Flush Valves. Write for full particulars. Our introductory catalogue is now ready and will be sent free upon request.

GALT BRASS COMPANY, LTD.
GALT - ONTARIO

SECTIONAL VIEW OF
PerfectO
FLUSH VALVE



Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV

PUBLICATION OFFICE, TORONTO, SEPT. 1st, 1921

No. 17



Another New Empire Product

The Empire line continues to grow.
Here is one of the latest, our Empire centrifugal trap with adjustable nickel-plated sink connection, and with clean-out at bottom.

A trap with centrifugal action of this particular design will meet with universal approval.

Empire products are strictly Canadian made and are obtainable from the leading jobbers throughout the Dominion.

Always specify Empire when ordering.

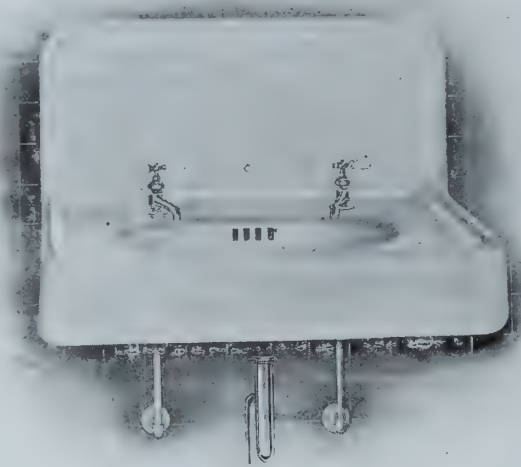
*"If it's an EMPIRE product
you know it's right."*

**EMPIRE BRASS
MANUFACTURING CO.,
LIMITED**

LONDON AND TORONTO - CANADA



**Cast-Iron
Centrifugal
Trap
A-1829**



Porcelain Enamelled One-Piece Lavatory

Porcelain Enamel Plumbing Fixtures



Porcelain Enamelled 2-Section Laundry Tubs

"Beaver" Porcelain Enamelled One-Piece Lavatory is illustrated above with Apron, Oval-shaped Basin with rear outlet, Patent Overflow and Chain Stay, on concealed Brackets.

Dimensions—Size of Lavatory 16 x 20 inches; Basin 10 x 14 inches; Height of Back 8½ inches; Depth of Apron 4¼ inches.

Roughing in measurements—Centre to centre of Supplies 11½ inches; Centre of outlet to wall 6¼ inches; Centre of supplies to wall 3½ inches.



"Maple Leaf" Porcelain Enamelled Bath

Beaver Brand

"Beaver" Porcelain Enamelled 2-Section Laundry Tub, on painted iron stands, with Roll Rim and High Back, cast in one piece. Complete with two wringer holders, N. P. Soap Dishes, Plugs and Stoppers. Painted exterior.

Dimensions—Length over all, 52 inches; Height from floor to Top of Tub, 30 inches; Height from Floor to Top of Back, 40 inches; Front to Back, outside 25¼ inches; Front to Back Inside, 21 inches; Depth Inside, 13½ inches.

Roughing in Measurements—Centre to centre of Supplies, 9 inches; Centre to Centre of Outlets, 24½ inches; Centre of Waste to Wall, 6 inches; Centre of Waste to End, 14¼ inches; Height of Stands, 16¼ inches; Distance from Floor to Centre of Supplies, 34¼ inches.

"Beaver" Porcelain Enamelled Bath with 3-inch Roll Rim, for Bell Supply and Waste Fittings. Painted exterior.

Dimensions—Width over Rim, 29¼ inches; Inside Width, 23 inches; Height to Top of Rim, 21¼ inches; Inside Depth, 16 inches.

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TINKER TOM'S TALKS.

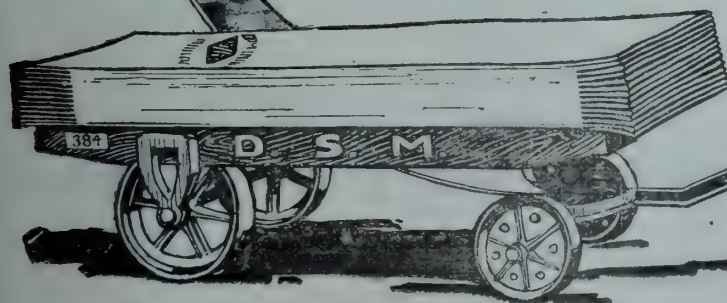
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It is generally conceded that an addition of copper adds life to sheets when serving under extra-corrosive conditions.

We are in position to furnish PREMIER GALVANIZED STEEL SHEETS with COPPER CONTENT at a slight extra, and all our product of

Galvanized Toncan Metal Sheets
has this copper added to the pure iron.

All Canadian jobbers can quote you much reduced prices on our Galvanized Sheets.



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is an essential in the upbuilding of any business with permanence. Quality is one of the three legs of the Tripod of Business. This Tripod is as necessary to the stable support of business as is the Famous Tripod of Life—the heart, lungs and brain—to human existence.

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represents the second leg of the business tripod. Without efficiency there can be no success, because efficiency signifies a satisfactory relation between the result obtained and the effort invested. We burn so much coal to obtain a certain horsepower in steam. We invest a given sum of money in business; if the business is efficient it produces a satisfactory return.

Service

is the positive complement of Quality and Efficiency, without which they could no more stand alone than could a three-legged stool with one leg lacking. The amount of our service to society at large is practically the measure of our receipts from the world—especially in business.

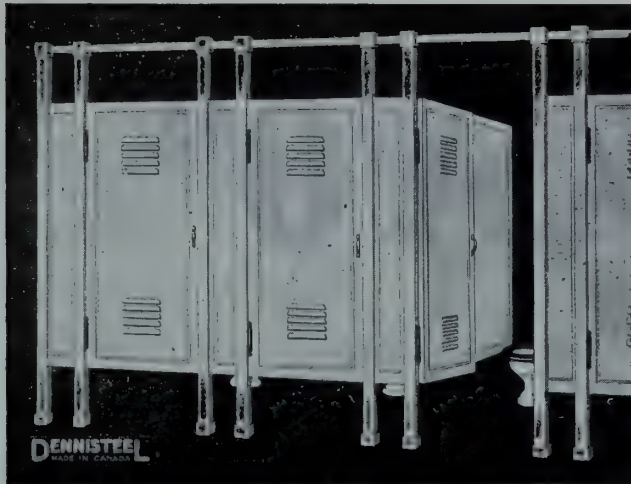
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Limited

GALT

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No Need to Ask How Could A Steel Lavatory Compartment Be Mis-shaped or Defaced

If it is a Dennisteel Lavatory Compartment it can't be defaced or mis-shaped. Its test in many of the largest schools, public buildings, factories etc., has proven that beyond a doubt. The Steel Lavatory Compartment presents a smooth enamelled surface that cannot be nicked or chipped. Pencil marks can be removed with an application of soap and water.

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"Hygienic

Fireproof

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You can feel sure that your customers will be entirely satisfied with the “Presto” Gas Water Heater — and it will bring profitable business.

Full particulars will be given on request. Write to-day.

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340 Amherst Street

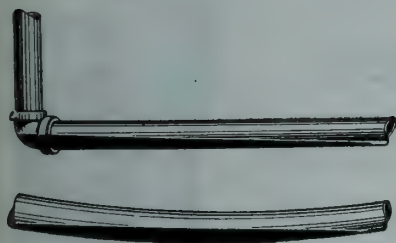
Montreal

* No. 3

Steam and Return Mains

Just as the right of way of a railroad is carefully selected to avoid obstacles, yet pass in close proximity, for economy's sake, of the district to be served, so should the steam main be so run as to avoid obstacles that would require changing its course. A grade of 1-2" fall in ten feet is sufficient to carry off the condensate and not interfere with the flow of the steam to the various risers. The return main should start as near the ceiling as possible and run in same direction with the steam main, but with more grade. Since the return mains are considerably smaller than the steam main, and it is of first importance to provide for the free escape of air, a grade of 1" fall in ten feet should be made in returns.

The steam and return mains should run so that spring connections between mains and risers would be about five feet in length or less.



Care should be exercised to avoid fittings that are not tapped true, and omit the use of bent pipe. A piece of bent pipe, causing a pocket for the accumulation of water, will seriously affect circulation, due to the restricted area of the pipe. It requires increased pressure on boiler to compensate for such defects, and the full benefits of economy and satisfaction cannot be derived from Dunham Heating if such defects mar the installation.

*This is the third of a series of talks on steam heating, appearing monthly in Sanitary Engineer.

You will find all very interesting and of help in your daily work.

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

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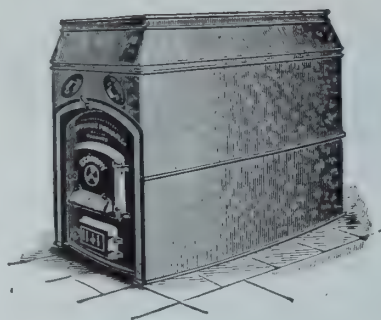
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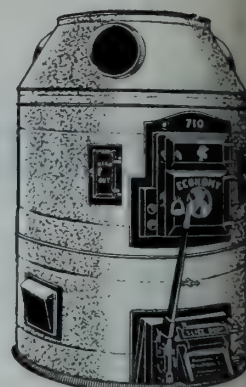
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Pease Wood Burning Furnace

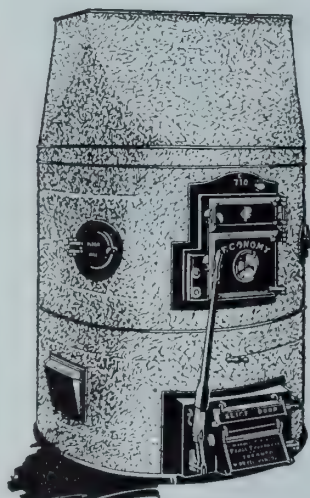
When You Need Heating Materials of any Description



Pease Pipe Furnace

Remember the Name Pease

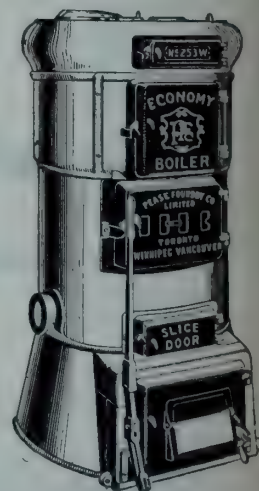
No matter whether your requirements are large or small, we can take care of same. Our line covers everything needed in the installation of Pipe Furnaces, Pipeless Furnaces, Hot Water and Steam Heating Systems. If you are not regularly receiving our discount sheets, write us to-day and have your name placed on our mailing list.



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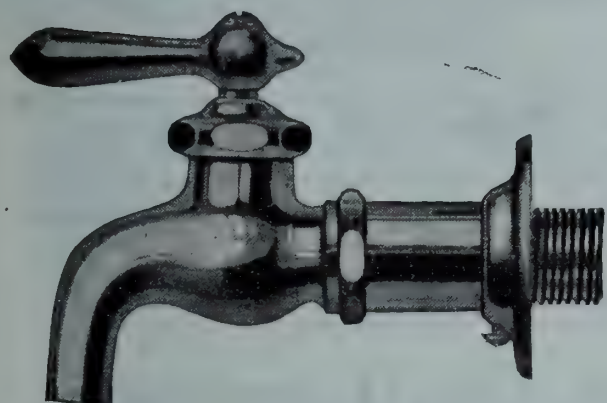
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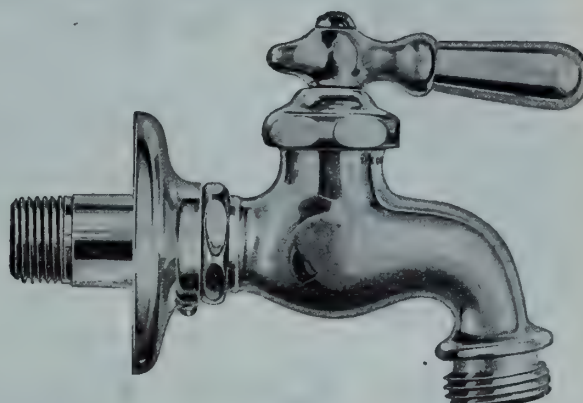
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Sink Faucets

EASY ANSWERS TO PLUMBERS QUESTIONNAIRE



A1002



A1000

Q. What is the difference between your faucet and other makes?

A. The Quatern Faucet differs from other makes in that **ALL of the wearing parts are easily removable and renewable**. These are contained in one Standardized Interchangeable Working Unit which fits into and operates perfectly in every faucet bearing the Quatern name.

Q. Do you guarantee your faucets not to leak?

A. No, any faucet which receives friction from running water, the brunt of the pressure, and the constant handling and operation by a variety of people, will leak some time or other. The Quatern is so constructed as to **make repairing easy and cheap**.

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A. Because when a faucet leaks, **the water eventually cuts across the seat, makes the leak greater and destroys the seat**. In the ordinary faucet the seat is part of the body, so the faucet itself becomes useless. In the Quatern, **when the seat is destroyed a new seat may be put in, making the faucet as good as new in operation**.

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A. As well as any make on the market, **better than any other quick compression type**. This is due to the combination of high pressure and vibration in buildings tending to open quick compression types which close **AGAINST** the pressure. Quatern closes quickly, but **WITH** the pressure, thus eliminating trouble.

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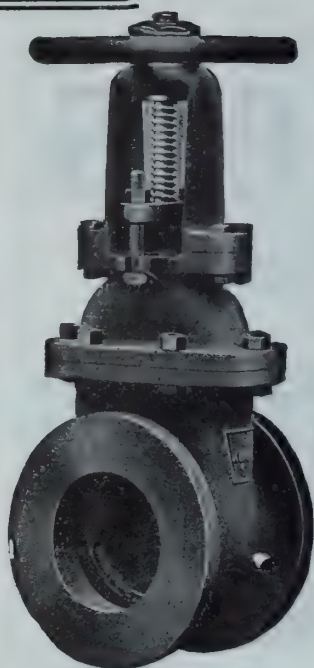
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TORONTO

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Mr. L. N. Vanstone

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KERR VALVES ARE GOOD VALVES

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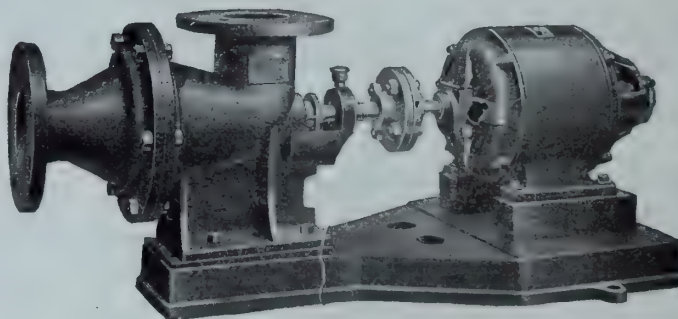
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**This Big Plant is Equipped
with JENKINS VALVES**

Above is pictured the Kipawa Plant of the Riordon Pulp and Paper Co., and at the right is shown a Jenkins Extra Heavy Cast Steel Gate Valve—one of the many Jenkins Valves with which this big plant is equipped.

The Valve has spindles, seat rings and wedge faces of Monel Metal rendering it admirably suited for superheated steam service.

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, SEPT. 1st, 1921

No. 17

CONTENTS

Downward Tendency in Plumbing Supplies.....	13
Little Satisfaction for Tinsmiths.....	14
Plumbing Equipment at Fall Fairs.....	15
Making Study of Pipe Corrosion.....	16
Sewage Disposal for Small Communities.....	17
Editorial	18
Practical Sheet Metal Work.....	19
News from Here and There.....	22-23
Market Conditions and Tendencies.....	24

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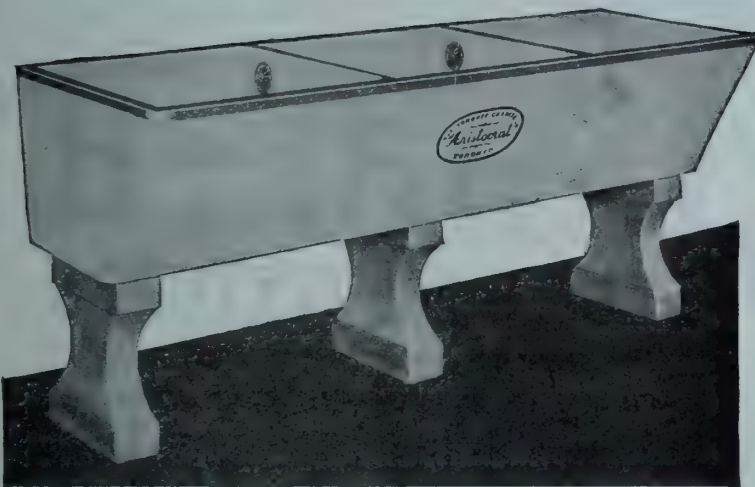
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Sanitary Engineer

Plumber and Steamfitter of Canada

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Downward Tendency in Plumbing Supplies

Easier tendency in Primary Steel Markets Reflected in Soil Pipe and Fittings, Sheets, Plates etc.—Bathroom Fixtures, Building materials, Radiators, Boilers, Seamless Boiler Tubes Compression Work etc., Figure in Declines

THE prevailing price tendency on numerous plumbing and steam-fitting materials is undoubtedly in a downward direction. Easier tones have recently been noted on the primary steel markets, and this trend has been reflected with lower quotations on bar iron and steel, and more particularly on annealed plates and galvanized sheets. In conjunction with these changes are the recent revisions in corrugated sheets, the lower quotations on soil pipe and fittings, and the revised pipe list.

The spread of the reduced price movement has also touched various building materials such as cement, bath and basin fixtures, valves and cocks, radiators, boilers and seamless boiler tubes. The more recent changes in this connection include such articles as Canada plates, solders and sheet lead while the easier tendency is also noted in copper and brass sheeting with future price developments looked for on many sanitary lines such as closet fixtures, enamelled baths and sinks and compression work generally.

Current price reductions have extended to range boilers, where quotations on the standard 30 gallon size have again been shaded. Simultaneously lower prices have been announced on boiler stands and cast iron specialties, including bell traps and sink couplings. Scrap metal prices continue to sag, and in many instances have now reached new low levels, which are the more noticeable when compared with the higher range attained during the war-period inflation. Quotations in general have already declined in a more or less substantial degree from the pinnacle of prices reached during recent years and the apparent downward revision is confronted with the obstacles of lower replacement costs and the liquidation of high-priced stocks.

Price-cutting, which in turn brought about the official announcements of lower prices on steel and steel products, has now carried quotations on the primary markets to a stage where there is said to be little or practically no profit for producers in selling at the present levels. The industry in general has

therefore reached the point when stabilization of prices is looked for, and this factor is expected to develop with the revival of a normal demand for steel during the fall trade period. At present quotations on ingot metals have sunk to the lowest mark generally recorded during the last six or seven years. Prices on copper, tin and aluminum, have again receded but the attractiveness of prevailing price recessions is a factor which is calculated to ease the markets from the depression and apathy apparent during recent months.

Condition of Building Activity

Although the total volume of construction work this summer is estimated as below the optimistic expectations which prevailed early in the season, the revival in building activity during the months of July and August has undoubtedly stimulated the movement in materials of this class. This condition particularly applies to the erection of homes, a phase to which heating and sanitary engineers as well as plumbers and steam-fitters have paid a marked degree of concentrated attention this season owing to the apparent limitations to construction work of a more extensive nature.

The recent easier prices announced on stoves and furnaces, coupled with the earlier revisions in quotations on conductor pipe, elbows and eaves-trough, are all contributory factors serving to stimulate current activity in small building. The opinion has been expressed that a concentrated effort in this direction earlier in the season would have attracted a heavier building program. It has, however, been pointed out that price lowering up to the present has been principally based upon the various reductions in raw material costs and that labor charges and freight rates are still vital contributory factors tending to restrain the further decline in the cost of production. It is therefore, anticipated that future concessions in these elements remain the deciding features of the price movement generally and that comparative declines in both transportation and labor costs are essential to the introduction of further price revisions upon a scale of importance to the trade.

Little Satisfaction For Tinsmiths

Contradictory Rulings Being Given as to Status of Tinsmiths for Taxation—Local Collectors Giving Their Own Interpretation Leads to Much Confusion—Conference at Ottawa Productive of No Definite Action.

Despite the definite rulings made from time to time by officials of the Department of Customs and Inland Revenue as to the status for taxation of tinsmiths, further complications have arisen which make it impossible for the tinsmith to know just what his responsibility is.

This matter was dealt with by Sanitary Engineer at the time it was proposed to tax tinsmiths as manufacturers rather than as retailers, and as result of strenuous protest, George W. Taylor, Assistant Deputy Minister of Customs and Inland Revenue gave a definite ruling to the representative in Ottawa, as follows; "If the work he is doing is being done for the consumer, regardless of what he is making or assembling; then I say most emphatically he is a retailer and cannot be classed as a manufacturer."

Subsequently a test case was arranged in the Ottawa courts to test the validity of classing as a manufacturer a merchant who assembles or does special order work for customers. It was decided by the presiding judge that merchants such as tinsmiths who do repair work and make up eavestrough etc. could not be classed as manufacturers. On the strength of this case, merchants were recommended not to take out manufacturers' licenses despite the rulings of local Collectors. Then in view of the fact that some local Collectors harassed some dealers with their own rulings, endeavoring to make a distinction between sheet metal workers and tinsmiths, the case was again brought to the attention of Ottawa authorities. This time it was stated that local Collectors' rulings were not necessarily final, that appeal could be made to the Ottawa authorities, and that if the merchant was satisfied that he was doing a strictly retail business, that he should write the words "Abandoned" upon the papers sent to him, and return them to the Department, when the case would be brought to the attention of the Department at Ottawa and final ruling given as already outlined.

Conference at Ottawa

A conference was subsequently held between representatives of the tinsmiths and other retail trades classed as manufacturers and officials of the Department of Customs and Inland Revenue, at Ottawa. Unfortunately no definite action was taken to establish the responsibilities of tinsmiths for taxation at this conference and tinsmiths are just as much at sea as ever before. The point is that various head officials of the Department at Ottawa have made different rulings and local Collectors throughout the country seem to be relying upon their own rulings. The result is that tin-

smiths in some parts of the country are operating under manufacturers' licenses and collecting sales tax and tinsmiths in other parts are operating as retailers without any such license and not collecting any such tax. It is evidently a matter of the local Collector's interpretation of the law.

The only backing which tinsmiths have in declining to take out such license where it is presumed to be required by local Collectors, is the fact that two test cases in the courts have established that tinsmiths and other such retail trades are not manufacturers. Evidently therefore if a tinsmith declined to take out such license and action in the courts was brought on, he would probably win the case on the ground of the previous judgment providing circumstances were similar. But he would have to pay court costs for defending the action.

The Retail Merchants Association is advising its members to decline to take out manufacturers' license and state they are willing to fight any other merchants' cases in the courts if necessary.

Evidence of the contrary rulings being given by officials of the same department at Ottawa is found in the experience of a Brantford, Ont. tinsmith who has recently been informed by some official of the Department at Ottawa who writes a letter and then rubber-stamps the signature of R. R. Farrow, Commissioner of Customs & Excise, that he is a manufacturer. Significantly the letter so informing this tinsmith written on July 15th, 1921, is in direct contradiction to a letter written from the same Department and with the same rubber stamp signature, but bearing different signature initials of the writer, written on June 28th previous. The stages of this case will be traced herewith.

This tinsmith took out a manufacturers' license, as prescribed, this license having expired on March 31, 1921, he then declined to take out license for the succeeding year on the basis of advice given by Sanitary Engineer. He thereupon received letter from the local collector of customs and excise quoting a paragraph from a letter from the Department addressed to a firm doing a similar business. This letter was as follows:—"I am advised to the effect that you manufacture sheet metal work and also that you produce goods for contractors. In consideration of the above, your business cannot be considered as exclusively retail and same must therefore be operated under a sales tax license and sales tax collected accordingly." On the basis of this letter the collector in Brantford stated that he considered it necessary for this tinsmith to take out manufacturers' license. There-

upon he wrote to George W. Taylor Ass't. Deputy Minister of Inland Revenue, Ottawa, quoting the interview with that official which appeared in Sanitary Engineer and mentioning the result of the test case and quoting the definition of a manufacturer as laid down in that case, namely, "one who manufactures articles for sale, to be sold again by a retailer or a jobber." He pointed out that on this basis he was doing a strictly retail business as orders were accepted directly from the consumer.

Replying to this letter came the following letter signed with the rubber stamp signature of R. R. Farrow, Commissioner of Customs & Excise, but apparently dictated by someone else. It reads:—

"You are informed that the status of tinsmiths, selling exclusively by retail, goods made to the order of each individual customer, has been established as being that of "retailers" and not subject to payment of Sales Tax on their sales. The Collector of Customs & Excise at Brantford is being instructed in this regard and you will please communicate with him."

A Radical Change

However this ruling was radically changed in a subsequent letter sent from the same department and signed similarly except for different initials of the party dictating the letter. It read:—

"With further reference to the question of your status for purposes of sales tax, you are informed that as the result of an investigation of your business, it has been decided that you are not entitled to classification as retailers. It will therefore be necessary that your business should be operated under a sales tax license and that you should make payment of sales tax to the Department."

Discussing the matter with Sanitary Engineer, this tinsmith pointed out that the only investigation conducted in the meantime had been a brief telephone call from the collector in Brantford and that no new information concerning his business had been secured as result.

In answer to his last letter he wrote at length to G. W. Taylor, Ottawa, explaining complete details concerning his business, as follows:—

"I wish to advise the only investigation my business received was a telephone call from the local customs department asking if I made eavestrough, furnace pipe and furnace casings. I advised that I did so.

"I am enclosing two sample contracts of the class of work we do, and I will ask that you refer to your letter of June 28th in which you advise the status of tinsmiths as being retailers. Your re-

(continued on page 23.)

Plumbing Equipment at Fall Fairs

Progress of Plumbing and Heating Engineers Toward Merchandising Status Can Be Aided by Exhibits at Fall Fairs—Showing Prospects What the Complete Bathroom Equipment Looks Like—Water Under Pressure for People from Rural Districts.



An effective arrangement of plumbing goods for the Fall Fair is to arrange the various pieces of equipment around the walls of a low partition as shown herewith. Several different types of basins, closets etc., are shown with other minor accessories shown attached to the wall. The booth was finished in spotless white, except the floor, and it served to emphasize the sanitary features pointed out by the representatives of the firm.

With the gradual progress of the plumbing trade toward a level on which its operators become merchandisers, the annual Fall Fairs held throughout the country become of more importance as an opportunity for soliciting business in plumbing and heating equipment. Those plumbing and heating engineers in Canada who are adopting this attitude and arranging their shops as attractive showrooms which people will be glad to visit, and wherein various lines are displayed for public investigation, are benefitting to a great extent. Following out the same plan the Fall Fair presents a unique opportunity to put such equipment before the visitors to the exhibition, at a time when they are in a receptive mood and anxious to see what is new.

For the plumber located in rural districts the Fall Fair presents a good opportunity for displaying water systems, an effective exhibit being arranged showing water under pressure running through the home and the barns.

Many such Fairs are now under way and will be continuing until into October so that they present a good opportunity for showing heating equipment and for soliciting plumbing business prior to the opening of the winter season.

Necessary for Sanitation

In planning an exhibit the best results will be attained by emphasizing the value of plumbing installations from the standpoint of a necessity for sanitary reasons, rather than something which will be merely to provide more joy and convenience. Plumbing fixtures are no longer a luxury and there is no excuse why they should not be in use in practically every home in the country. Every effort should therefore be aided to educate people to the importance of sanitary plumbing accommodations.

In this connection the chief value of the Fair lies in the opportunity presented for showing how the various pieces of equipment look when actually installed. Sample bathroom outfits, for instance, are always effective in attracting favor-

able attention. It will generally be found that such an exhibit will prove highly educational to the visitors to the Fair, and if done on a generous scale by plumbers throughout the country the effect should be very great. The great value of good impressions is generally recognized, and as first impressions are lasting it is necessary for the exhibit to have an attractive and interesting arrangement.

Complete Equipment

A bathroom can be shown to good advantage, completely equipped with shower, wash basin, soap holders and other accessories. A sanitary drinking fountain with a water supply outfit supplying water always attracts those located in the rural districts, and the providing of drinking water brings many interested persons into the booth. Representatives of the firm should be constantly on hand to receive visitors and explain the merits of the various equipment and showing by means of statistics just what such equipment means in the life of the community.

Making Study of Pipe Corrosion

Investigation Shows Soil Chemicals May Be Responsible for Supposed Electrolytic Damage in Winnipeg to Water Mains—Advanced Corrosion of Cast Iron Pipes Less Than Eight Years Laid—Also Affects Concrete Pipes.

Much damage has been caused to water mains in the City of Winnipeg recently, and corrosion noted in cast iron water pipes which have been laid for less than eight years. It has been held by some experts that the corrosion was due to electrolytic damage, but this attitude is not held by other authorities. Some efforts were made to secure details of the matter.

T. H. Hooper, operating superintendent of the waterworks system, when questioned, stated that all he was concerned in was the repair to the mains. That damage had been done to the extent of several thousand dollars was certain, but what that damage was caused by he would have to leave to the experts to say. He might have his own personal opinion, but it was for the experts to decide the cause of the damage. Referring to the fact that water mains were similarly damaged in other cities, Mr. Hooper said he believed Winnipeg was further advanced in the study of the matter than any other place. What were problems to them had gone into the A. B. C. class locally.

F. A. Cambride, city electrician, also refused to make any definite pronouncement on the matter because it was being dealt with by a special committee. But a quite different aspect has been created by the visit paid to the grounds of the Selkirk mental hospital, by a party of professional chemists and engineers from Winnipeg. They made a personal inspection of a six-inch water main, about 100 feet of which had been recently exposed in the course of excavating for the pipe tunnel between the new hospital and the boiler house. The party consisted of the following: A Blackie, city chemist, Winnipeg; A. G. Phillips, assistant to Mr. Blackie; W. Aldridge, assistant city engineer of Winnipeg; T. H. Hooper, superintendent of water department, Winnipeg; Professor J. N. Finlayson, head of the civil engineering department of the University of Manitoba; Douglas McLean, C. E., chief engineer, Manitoba drainage commission; Dr. C. B. Clevenger, professor of agricultural chemistry, Manitoba Agricultural college; E. L. C. Forster, chemist, Dominion government department of health; G. W. Rogers, city engineer, municipality of St. James; Dr. J. W. Shipley, assistant professor of chemistry, University of Manitoba, and W. Nelson Smith, M. E., consulting electrical engineer, Winnipeg Electric Railway company.

As the water supply system of the hospital is secured from wells drilled on the property to a depth of 250 to 300 feet, and the piping system is entirely

separated from the Selkirk water supply, and as the hospital is more than half a mile from the western outskirts of the town, and not less than 1¼ miles from the northern extremity of the Selkirk trolley line, it was said to be quite outside any possible path of stray current from the electric railway. The only electric current on the property is a 60-cycle alternating current for lighting, and the United States Bureau of Standards, it was pointed out, had proved by exhaustive and long-continued experiment, that it was impossible for an electric current of this character to cause destructive electrolytic action on buried metal structures.

Corrosion of Pipes

The pipes examined, although they had not been laid for more than eight years, were shown to be affected by some corrosion of the cast iron, well advanced in many spots. Several members of the party dug the products of the corrosion out with their pocket knives to a depth of one-sixteenth to one-eighth of an inch, not only near the joints but in the middle of the pipe.

The progress of corrosion was observed in its various stages, and the corroded metal in the pits eaten into the pipes was similar in appearance to the products of corrosion observed on damaged water pipes in Winnipeg. All such damage, wherever it had happened in the city, it was stated, had always been attributed solely to electrolysis from stray currents leaking from the electric railway tracks.

The soil on and near the pipe was examined and found to compare very closely, in general appearance and composition, with the soils in which the Winnipeg water pipes are buried, many samples of which from various parts of Winnipeg and adjoining municipalities, have been examined during the past year both by Mr. Blackie and Dr. Shipley.

The presence of soluble salt crystals in considerable quantity was also observed by all the party on clay freshly excavated from new trenches in the street in front of the hospital. The similarity of this clay and its salt content, to the clay and its contained salts as met with all over Winnipeg and vicinity was remarked upon by all present.

This water pipe had thus been imbedded in earth containing salts that are known to be chemically active, and further, by reason of its location, had been entirely free from access of stray direct current, which can only dissolve the metal where it leaves a buried pipe to enter the surrounding earth. Stray-current electrolysis was, therefore, admitted by all the party to be impossible under the circumstances.

Chemical Activity

The only inference that could be drawn from the facts noticed by the party was that the observed corrosion could only have been caused by the chemical activity of the solutions of the so-called alkaline salts.

It was further pointed out that it had also been recognized for several years past, by practicing civil engineers, and more recently by public authorities and the public generally, that these alkaline salts, the sulphates, chlorides, carbonates and bi-carbonates of magnesium, calcium and sodium, which are widely distributed through the soil of western Canada, are very corrosive to concrete made of Portland cement, no matter how carefully the concrete is mixed and deposited.

Chemical research work started about a year ago under the direction of W. Nelson Smith, M. E., and conducted personally by Dr. J. W. Shipley in the laboratory of the University of Manitoba, has brought to light many facts hitherto unsuspected either by the engineering profession or by the public, respecting the behaviour of commercial cast iron, lead and copper, in contact with neutral solutions of the above so-called alkaline salts. This research is now so far advanced that a definite report on the main outstanding facts will be forthcoming soon.

Pipe corrosion, as observed by the party, of chemists, engineers and specialists, it was urged, thus fairly comes into the same category as the corrosion of concrete, with its accompanying results of collapsed sewers, culverts, piers and foundations. Henceforth, pipe corrosion will receive the attention of professional scientists, as a matter of public concern of equal importance with the corrosion of concrete.

The western professional meeting of the Engineering Institute of Canada will discuss at some length the subject of cement and concrete corrosion. A cement research committee of the institute has recently been formed, composed of the leading civil engineers of the three prairie provinces. The Manitoba representation on this committee is headed by Professor Finlayson.

As nearly all the members of the party who viewed the self-corrosion of the pipe at Selkirk, are members either of the Engineering Institute or of other scientific societies of national scope, the whole subject of the destruction of underground pipes by stray current electrolysis or by self-corrosion, has now been brought to a stage where it can be dealt with upon a new and purely scientific basis, in which all the relevant facts

(continued on page 23.)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

CHAPTER VI

In all methods of tank treatment of sewage the one great difficulty which requires the Engineer's thought is the disposal of the deposited, suspended matter in the tanks which from time to time accumulate so as to almost fill the tank at the inlet end.

The ordinary settling tank as previously described produces the greatest amount of sludge whilst the septic tank through the length of time it is contained in the tank liquifies and, in some cases, the suspended matter has been reduced 50 per cent. It varies considerably, generally from 20 per cent. to 50 per cent., so that is one of the reasons why the septic tank has gained favour amongst the property owners.

The most modern method is the Imhoff process of handling the sludge proposition which is done in the sludge digestion chamber where all the chemical changes take place during the time same is stored in this chamber. The decomposition of the sludge in this case is accomplished without same coming into contact with the clarified tank effluent and all the gases are given off free into the air by the method previously explained. The sludge in this case can be run off into sludge drying beds and if complete decomposition has taken place there will not be the slightest smell from the drying process which is accomplished in two or three days according to the weather conditions.

In order to calculate the size of sludge beds to take care of the sludge from the tanks, it is usual to allow 350 sq.ft. of surface bed area per thousand population on an entirely separate system, but with a combined system, with street washing and trade waste, 50 per cent. should be added to this area.

The sludge from both the settling and septic tanks during drying and clearing-out operations, give off obnoxious gases until same is spadable.

The following illustrations give the detail of a sludge drying bed or lagoons for both septic, settling and Imhoff installations, and is one way of disposing of the sludge as the sun dries out all the moisture and same is then buried or applied to the land for manurial purposes.

Imhoff tank sludge has no manurial properties whatever and can be used for filling in low lying ground with perfect safety. Septic, and especially settling tank sludge, has good manurial properties and should not be used for filling purposes without great caution.

The sludge from settling tanks is nothing more than concentrated sewage matter which has undergone little or no change, while septicised sewage undergoes considerable change the putrescible matter being liquified leaving the sludge high in carbons.

Sludge contains manurial matter of value but owing to the large percentage of water, it cannot be utilized at a profit and the best way of disposal on land direct is to furrow the land deeply, run the sludge into these deep furrows and return the earth to the furrows as soon as the sludge has partially drained out.

This system is only applicable with small installations and owing to the large amount of land required for such sludge disposal renders its adoption out of the question for large disposal works.

Sludge may be burnt in incinerators, buried, or carried out to sea or large rivers.

In large disposal works the sludge is

treated with chemicals and pressed into cakes and given away to farmers.

Sludge is composed of 90 per cent. liquid and can be pressed into small space, the liquid being again passed through the sedimentation tank for purification.

In two chamber septic tanks it is often either too seldom or too often cleansed out for good working results through lack of knowledge on the part of the attendant, and it should always be borne in mind that so long as the scum on the surface of the liquid in the first chamber is not disturbed by filling or emptying the tank in its ordinary method of working there is no need of cleaning the sludge out at the bottom of the tank oftener than once a year. It is a bad policy to disturb the scum as upon this formation depends the successful working of your septic tank and it should not be disturbed more than is actually required.

DISCUSS SASKATCHEWAN WATER SCHEME

General Plan of Supplying Water to Moose Jaw and Regina—Water for Rural Districts—Wood Piping To Be Used.

Moose Jaw, Sask.—A large and very representative number of citizens and neighboring farmers were present at a meeting to hear the outline of the proposed Saskatchewan River water project. His Worship Mayor Smith occupied the chair, and the addresses were given before an orderly crowd, evidently present to hear both sides of the question. Ex-Mayor S. A. Hamilton was much in evidence with his counter proposals, and was given a fair hearing by the audience. Lieut.-Colonel A. J. McPherson, chairman of the Saskatchewan Water Supply Commission stated that the Commission had inquired fully into the feasibility of the Saskatchewan Water scheme and had found it favorable. The commission had provided for an advisory board consisting of representatives from the cities of Moose Jaw, Regina and the Canadian Pacific and the Canadian National Railways, and the business of all these men was to find out all the information possible concerning the project. As the country districts did not have such men to represent them

a series of meetings were held to find out the opinion of the country districts.

The Main Pipe Line.

The speaker then roughly sketched the line that would be followed by the main pipe line from the outlet at Riverhurst, where the river would be tapped, as far south as Moose Jaw. The commission had considered into the future until the time when the population of the cities should be doubled. This period was estimated as ten years, although the growth of the city could not be accurately judged. If the population were doubled it would mean that 13 million gallons would be taken from the river daily.

Speaking on the question of the distribution of the water in the rural district, a question which was of special interest to the farmers, he pointed out that branch lines would be run off to the districts as they were required and of a size to supply sufficient water, and an additional sum would be charged on the branch lines to make them self supporting.

(Continued on Page 23)

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BRIEFS

A report presented at the farmers' conference in Guelph on water supply in farm-houses showed that in the township of Markham, one of the best in Ontario, 77 per cent. of the farmhouses have no interior water supply at all. The absence of modern conveniences is one of the reasons why young people leave the farm.

UNFAIRNESS TO TINSMITHS

FURTHER evidence that the tax regulations introduced by the present officials at Ottawa are not only difficult for others to understand but are also beyond the comprehension of the officials themselves, is quite evident from the confusion which has been caused by the original classification of tinsmiths and other retailers as manufacturers, for the purpose of taxation. This question has been threshed out on many occasions and what was thought to be a final settlement arrived at, only to crop up again from some new angle.

Elsewhere in this issue the complete procedure of the dealings of a tinsmith of Brantford, Ont., with the Department of Customs and Inland Revenue at Ottawa, is reviewed. This correspondence quotes the rulings which the Ottawa representative of Sanitary Engineer secured direct from Geo. W. Taylor, Ass't. Deputy Minister of Customs and Inland Revenue, and also quotes the findings of the two test cases, which were in favor of retailers and also quotes the actual statement made in a letter signed by R. R. Farrow, Commissioner of Customs and Excise. Yet despite all these assurances, a letter from the same department is received by the tinsmith stating that as result of an investigation conducted in the few days between the letters his status is changed to that of a manufacturer. The investigation consisted of a brief telephone call from the local collector who merely enquired if he made eavestrough, furnace castings, etc. Such information could in no way alter the case as all tinsmiths make such lines.

It is a most unsatisfactory condition when two high officials of the Department contradict each other, and the one contradicts himself in his own correspondence. It is time some definite and logical stand was taken in such matters, applying to all without discrimination.

In an endeavor to arrive at a final and definite ruling which would be thoroughly understood by all members of the Department of Customs and Inland Revenue and which will be in keeping with the logical status of the tinsmith, a conference was called between the Minister of Customs and Inland Revenue and all the heads of departments at Ottawa and representatives of the various retail trades interested. This conference was arranged partly due to the suggestion of Sanitary Engineer for a complete airing of the case but unfortunately tinsmiths are now as much at sea as ever.

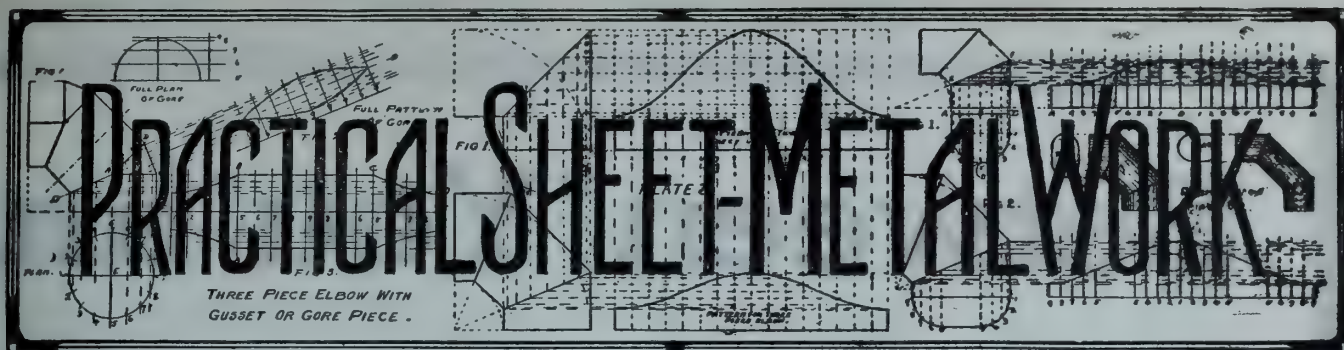
PLUMBER AS A MERCHANT

PPOINTING out that the plumber, a much-maligned person in recent years is becoming a large retail merchant in city and country, by realizing the value of selling a variety of goods as well as his service, a recent article in the A. B. P. News shows the possibilities there are for development of plumbing business. It points out that there are about three times as many homes to be equipped with plumbing as there are at present equipped. That 50 p.c. of the homes now equipped with plumbing and heating equipment are bona fide prospects for additional equipment, also that only about one-sixth of the homes which are prospects for heating equipment are now so equipped.

It continues to point out that the usual conception of a plumber has been a cross between a highway robber, a first-class tool-forgetter and a general time-waster and states: Such has been the description furnished by the professional jokesmith that we tend to shudder at the very name of his business. But our respect for a person—like our ideas of respectability—is largely a matter of time and place. Just as respectability depends upon whether one wears a bathing suit upon the beach or in the ball room, so our respect for a plumber depends upon whether we look upon him as a seller or buyer, whether he is in our home or in our salesroom.

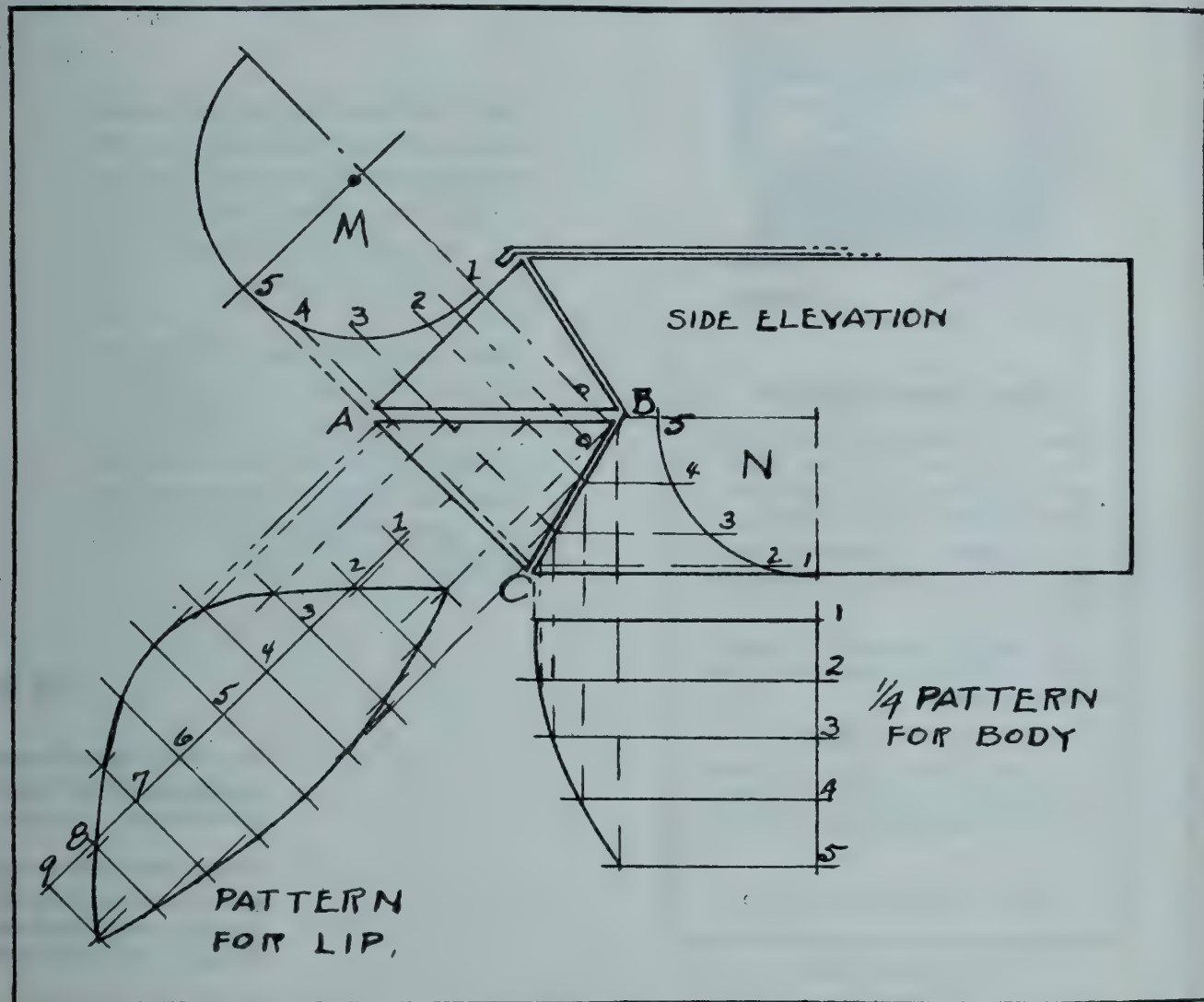
Few persons realize how large the plumbing trade has become in recent years or how greatly it has gone into the merchandising business—how the journeyman plumber with his kit is giving way to the plumbing, heating and ventilating contractor with a big plate-glass-front store on Main Street. It goes on to show that a recent investigation among five thousand leading contractors in a certain section of the country purchased in one year plumbing goods and accessories amounting to sixty million dollars; steam and hot water heating equipment, forty million dollars and water supply systems and pumps, a million and a half dollars. This does not include tools and machinery for shop.

The plumber has come to be looked upon as an expert and in recent years he has developed a line of work which takes plumbing out of the class of seasonable work. The next few years are expected to see a big increase in the number and variety of tools and machinery used by plumbing and heating contractors. It is probable that as merchandisers plumbers will come to a realization that a profit on the materials supplied is what he should have and that the labor should not be made a basis for profit,



Pattern For Bucket Lip

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri



A considerable while ago Mr. Gustave Enackson of Hammond, Indiana, asked to have patterns developed for a bucket shown in the sketch of this drawing.

The correspondent also asked about establishing a parts miter between lip and body of bucket as line B-C. This we are unable to do unless by series of experiments, or better yet, by copying the line from an old bucket.

Let us assume that B-C is the miter line, which in this case is copied direct from the sketch. Then A-C is drawn on a 45 degree angle, or any angle for that matter, that is found practical.

Now observe that this lip unrolls from

line A-C and when looking into it parallel with this line, the lip will form a semi-circle, as section M.

Describe this section and divide one quarter in equal parts.

From these points in M project lines parallel to A-C, thereby intersecting miter lines A-B and C-B.

To set out the pattern, pick the girth from section M as 1-2-3-4 and set on a line drawn at right angles to A-C as 1-9.

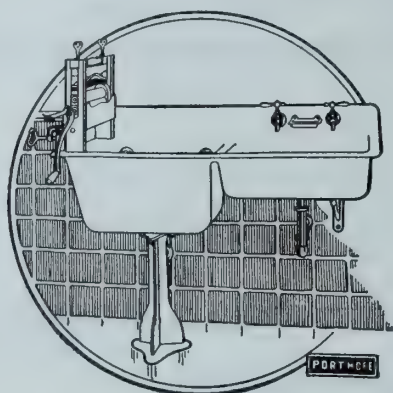
Draw stretchout lines through each of these points and then from each intersection in miter line A-B and C-B project points into stretchout until they meet with lines of similar number.

Through these new intersections sketch the curved outline and the pattern for lip is finished.

To set out the pattern for body of bucket with the miter line B-C developed on it, pick the girth from quarter section N and set off below as 1-5. Draw stretchout lines from each of these points and then from each point in miter B-C drop lines into stretchout of similar number. Through these new intersections sketch a uniform curve and the pattern is finished. Only a quarter pattern is set out in this case as by reversing it the entire layout can be easily made.

Between You and Your Local

Cut No. 504



For Your Kitchen

There is a laundry tray as well as a sink—all in one piece, made of beautiful porcelain enameled ware, lustrous white.

And there is a drain board; also, if you wish, a wringer holder.

A more thoroughly useful sanitary fixture was never put into a kitchen.

Yes, it's a "Port Hope."

Let us show you one. It is representative of our standard of all-around plumbing work.

Your Name and Address Here

1 column x 75 lines

Every day you can call on people who need better plumbing — people that know they need it but have never taken the trouble to find out that you can supply beautiful fixtures at a cost within their means.

Your local newspaper is the servant to do this for you. It is not a hit or miss proposition, everybody reads it —same as you do—and if you tell them something worth while you are sure of attention and consideration.

THE FRE

If you have not already received containing illustrations of these for ordering. Always order by

These are attractive, well-planned quite free to change the copy if proved upon. They add to attractive display creates interest in a win

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms
119 KING ST. EAST

Winnipeg
405 TR

Possible Customers

Newspaper

By placing small and attractive advertisements in your newspaper you will by persistent and inoffensive effort persuade prospects to want bathroom fixtures that will give them joy and life long satisfaction.

Actuated by a spirit of co-operation, we offer a free service of advertising cuts and copy. Inserted in your local paper this copy will attract the favorable attention that brings business. This service is entirely free; you have only the small charge for newspaper space. This small cost is an investment that, persisted in, will pay you many times over.

SERVICE

be glad to send you a folder
ents conveniently numbered

advertisements, but you are
e illustrations cannot be im-
your advertisement just as a
ly empty.

Cut No. 507



Home Makers!

A Word With You

The health and comfort of your family depend very largely on the character and design of the sanitary fixtures and fittings selected for your home.

Therefore, you cannot afford to neglect a matter of such vital importance.

We install "Port Hope" porcelain enameled products—Made in Canada—because they insure all-round satisfaction.

Your Name and Address Here

1 column x 85 lines

g. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

CONTRACTS AWARDED

Sault Ste. Marie, Ont.—General plumbing and heating contracts for technical school costing \$225,000 for High School Bld. are awarded to Mitchell & Cooper, Adams Block.

BUSINESS CHANGES

Halifax, N. S.—Roy Mackay and John Bremner have dissolved partnership, but Jack is still "Carrying On," at the old stand, 76 Harvard street, and finds business fairly bright along his line.

INCORPORATIONS

Sloan Valve Co. Ltd. has been provincially incorporated with capital of \$40,000 and head office in Toronto to manufacture valves, plumbing specialties and metal products.

Wright Bros. Ltd. has been provincially incorporated with head office in Toronto and capital \$40,000 to carry on business of heating engineers and manufacture and deal both wholesale and retail in furnaces, piping, radiators, etc.

PERSONAL

Mr. Wilkes, general manager Cluff Bros., Toronto, has just returned from a leave of absence extending over 16 weeks on account of ill health.

Wm. Watson, plumber, of Moncton, N. B., and President of Moncton Master Plumbers' Association, after an illness of two years is able to be around again. Mr. Watson has been confined to the hospital for some time.

NEW WATER SYSTEM FOR RICHMOND HILL

Richmond Hill, Ont.—By the end of the year a modern waterworks system will be installed in Richmond Hill. The Council has let the contract, and work is to commence immediately. The total cost is estimated at \$92,000. It is to be finished by December 1.

The municipal water supply will be drawn from the Wilson Springs, at the west side of the town. A dam will be built and a storage tank erected to hold four days' supply in case of emergency. A filtration plant is part of the plans. The scheme provides abundance of water for fire protection.

AYLMER TO EXTEND WATER MAINS

Aylmer, Ont.—At a meeting of Council the main discussion was the question of water main extensions. Finally it was decided by motion that water main extensions should be carried out in such a manner as to bring the following streets into the area: Albert street, from Pine street to the river edge; Center street to Tiberius street and Brook street; North street from Dalhousie street to Front street; John street, one block north from Front street to Brock street and Eardley road.

\$90,000 FOR WATER MAIN

As the city of Montreal has entered into negotiations for the supply of water to the city of Verdun, the Director of Public Works has submitted a report to the Administrative Commission recommending that a credit of \$90,000 be voted for the construction of a 24-inch water main for supplying the water to that municipality.

METER WATER SERVICES

Galt, Ont.—Manager Fairchild, of the Public Utilities Commission, called attention in his report to the advisability of metering all services, and the Commission concurred in the suggestion and instructed the Manager to obtain prices on meters with a view to metering all services in the city. At present only about half the services are metered and the Commission feels that the only fair system to all consumers is that of having every service metered; and then the consumer pays for water used.

—O—

SAVED \$10,000 ON WATERWORKS

Sarnia, Ont.—\$10,000 is a conservative estimate of the saving effected in the purchase of waterworks supplies this year when compared with the estimates submitted for the same materials last year. The cut in the cost of the various supplies was announced by Ald. Dagan, chairman of the Waterworks committee, in submitting the recommendations of the committee in regard to the acceptance of tenders as follows:

Acceptance of the tender of J. B. Claw, of Chicago, for 200 tons of water pipe at a price of \$66.40 per ton for 6 inch and \$69.92 a ton for 4 inch also fittings for some at \$159 a ton. On the pipe alone

the cost was \$33.60 a ton less than last year, and the total saving is cited as \$6,700.00. The price includes duty, exchange excise etc.

On the award of the contract for the sale of valves to the Kerr Engine Co., of Walkerville at a price of \$10.86 for 4 inch and \$18.60 for 6 inch, the committee saved approximately \$200 according to the report.

The cost of hydrants was cut \$784 upon acceptance of the bid of the Dominion Steel Products Co., at \$73.33.

The purchase of valve boxes from the Francis Hankin Co., of Montreal at \$8.76 each will save \$350 over last year's figures, the report states.

The Mueller Mfg. Co., were the successful bidders for 5 tons of pig lead at \$125 ton, and on this material approximately \$400 is saved.

WANT INSPECTOR TO

BE PRACTICAL MAN

Edmonton, Alta.—Plumbers working in the city waited as a delegation upon the mayor and Commissioner Yorath and recited a number of complaints against the alleged unsatisfactory condition of plumbing in a number of restaurants and ice cream parlors in the city. Coupled with the complaints was the request that if another sanitary inspector is appointed, as now recommended, the man chosen shall be a man with knowledge of plumbing in order that he may be able to pass judgment upon the fixtures in use.

It was stated, for instance, that there is an ice cream parlor operating in the city where no sewer connection exists, and all the waste is poured in a hole in the floor, forming a pool. In another case, it is alleged that the sewer pipe in a certain cafe is open, and sewer gas escapes into the building.

The commissioners expressed their sympathy with the object of the delegation, and the request for the appointment of a practical man will be handed on to the board of health.

BUILDING STIMULATED

Plumbing and heating engineers who are looking for an improvement in building will be interested to note that building permits to the value of \$13,060,860 were issued throughout Canada during the month of June. This is a slight improvement over the total for the corresponding month of the previous year, when a total of \$12,315,933 was reached. The twenty-seven eastern cities report a gain for the month of \$879,695, with the values standing at \$10,077,620, compared with \$9,197,925 a year ago. A slight decrease in building activity is reported by the fourteen western cities, with totals at \$2,983,240, comparing with \$3,118,008 a year ago.

The fact that the totals for the month show even a slight improvement over the returns for the month of June, 1920, is an encouraging feature, and is an indication of some measure of revival of confidence in the building trades. The total is, however, wholly incommensurate with the building needs of this country, particularly in the matter of homes, and the lack of aggressiveness in the building trades can only be ascribed to the comparatively high costs of construction that still prevail. While there has been moderate adjustment of the cost of building materials, the cost of labor is still a highly important consideration. With labor tenaciously holding out for the peak wages, there is little hope for a revival of building on a broad scale. Not only do labor costs contribute an undue proportion to the cost of building, but there is a certain element of discontent among the workmen over the prospect of lower wages, and both these factors have a tendency to induce the prospective builder to hold over construction wherever possible, until conditions are more settled.

Welsh Canada Plates Available In September

Resumption of trade in welsh Canada plate is announced by importers, and supplies will again be available for fall requirements. This will be welcomed by many merchants who have been unable to procure these plates during war years and the two years following. Canadian distributors also state they have already obtained fair orders throughout the trade, but owing to the advanced prices over the American sheet, they do not anticipate the demand as would be the case if quotations were on a par with the American product. For this reason stocks will be governed to a great extent by the demand shown.

The superior quality of the Welsh plate is said to be well maintained, and first shipments are expected to arrive towards the latter end of the month or early in September, when a limited amount will then be available. Prices will be found in the market quotations.

(continued from page 16.)

MAKING STUDY OF PIPE CORROSION

of engineering, electro-chemistry, and local soil conditions, can be given their proper weight in reaching a fair and just conclusion.

Attention was drawn to concrete corrosion in Transcona, 7 miles from Winnipeg.

A big break in the Transcona main sewer on Nairn road was recently discovered, and repaired. The trouble was caused by the sewer being eaten away with alkali, and about 50 feet is affected.

(continued from page 14.)

LITTLE SATISFACTION FOR TINSMITHS

cent letter is a direct contradiction of this ruling.

"I feel the local collector is giving reports that do not represent the case. I employ from one to two tinsmiths and do the class of work as outlined in samples submitted. I am not desirous of evading any tax my business should rightfully pay, but if your ruling as outlined on July 15th is final then every tinshop in the country is liable to this tax and the advice given by the trade papers to the trade is not correct. Also every custom's tailor, Blacksmith, dressmaker and other sundry lines which are now not taxed are subject to the same tax as the nature of their business is exactly the same."

At time of writing the tinsmith had not received reply to this last letter but a further investigation conducted by Sanitary Engineer in Ottawa, reveals the fact that this question has not been settled yet in a manner satisfactory to all concerned.

ST. JOHN OFFICIALS INVESTIGATE WATER SUPPLY

St. John, N. B.—The intakes of Loch Lomond, Lake Latimer and the other lakes in that vicinity from which the water supply for the eastern section of the city is drawn were visited by Chairman John Kelly, Mrs. Richard Hooper, George Blake and Secretary T. M. Burns of the Board of Health, accompanied by Dr. H. L. Abramson, the board's bacteriologist; Dr. William Warwick, the board's medical health officer; Commissioner Jones of the water and sewerage department, and the superintendent of the water and sewerage department.

The visit was made in order to enable the board to gain a first hand knowledge of the present conditions obtaining at the city's chief source of water supply. The board found that conditions were

fairly good, but were of the opinion that the arrangements for the Robinson Lake inlet could be improved.

The opinion has been expressed that the water may have become infected after it had entered the city's mains, and Commissioner Jones has set crews to work to clean the pipes, especially those on the lower levels. It is said that it would be possible for pollution to arise from small eels which may have made their way into the mains and reached some levels where the water through little use may have become stagnant. In such a place the eels may have matured and died, and thus have caused the pollution in the water.

While the Hon. Mr. Wigmore was commissioner of sewerage considerable attention was given the cleaning of the city mains, with most beneficial results.

OUTSIDE CLOSETS MUST BE INSTALLED

St. Thomas, Ont.—Citizens residing in the sewer zones, who are using outside closets, must install sanitary conveniences at once, or stand liable to prosecution in the police court. A resolution to this effect was passed by the Board of Health, in accordance with the new sanitary by-law passed by the City Council two months ago. The penalty prescribed for those who fail to comply with the ordinance is a fine not exceeding \$50. The names of several persons in the city who live in the vicinity of sewers and who are using outside closets were given to Inspector Shaw with instructions to notify them at once. Dr. Turner and Dr. McKillop, the Medical Health Officer, were particularly desirous that the by-law should be enforced in the interests of public health, declaring the outside closets to be a menace to the same and a splendid method of spreading epidemics. A recommendation was also passed by the Board of Health "that a sewer be constructed under White street on sanitary grounds."

(Continued from Page 17)

DISCUSS SASKATCHEWAN WATER SCHEME

The General Scheme.

The general scheme as outlined by the commission was then touched upon, the main points mentioned being the supply necessary for the next ten years, the intake at the river, with a capacity of 15,000,000 gallons, and the filtration 600 gallons per day. In regard to the piping, he stated that cast iron pipe had been suggested, but its cost made such a scheme almost impossible. The iron would cost some \$14,000,000, while the wood would be in the neighborhood of only \$2,800,000. The interest on the cost of the iron pipe alone would pay for the wood in three and a half years.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

CAST iron specialties, such as sink couplings and bell traps; lead sheets and solders; boiler stands; copper and brass sheets; expansive and auger bits, comprise the basis of another lengthy table of price recessions on plumbing and steam-fitting materials. Further price shading on the standard range boiler again features the current markets, while lower prices are recorded on copper, tin and aluminum ingots. Quotations on various

scrap metals are also revised to a lower basis, while price concessions on Canada plates, closet fixtures, and on black and galvanized sheets are reported from eastern market centres.

Due to recent activity in construction work, building materials and similar plumbing supplies have experienced an improved movement generally, and a more active degree of trading is looked for during the fall period.

MONTREAL

MONTREAL, August 18.—Reduced prices on many lines of plumbing and steam-fitting supplies are again prominent.

The chief decline is perhaps on sheets, when corrugated are now selling at new lower list prices, and a general lowering of other black and galvanized sheets is announced. Canada plates, insofar as the American plates are concerned, will sell for less, while the new prices on Welsh Canada plates are announced. Prominent, too, are revised prices on closets, a general decline being given on outfits which heretofore were selling on an unsteady market. Soil pipe and fittings have lower quotations, also lead sheets and solders. Copper and brass sheets will now cost less. Stoves and furnaces are under an adjustment, and a slight reduction is resulting. While in tools, Clarke's expansive bits and Irwin bits are reduced.

New Prices On Clarke's Expansive Bits

Montreal—

Now lower prices are given on both sizes of Clarke's expansive bits. No. 1 will now cost \$22.00 a dozen and No. 2, \$31.50 a dozen.

Construction Work Demands Cement

Montreal—

A fair steady volume of business is being done in cement, construction work, although not as extensive as last year, still demanding supplies. No further changes are announced in quotations since the revision at the close of last month, and following are local prices.

Cement—

Car Load Lots—

400 to 1000 bag cars.

Per bag, f.o.b. cars 0 98

Per barrel, f.o.b. cars 3 92

Per bag, delivered 1 05

Per barrel, delivered 4 20

Less Car Lots—

Per bag, f.o.b. yard 1 12

Per barrel, f.o.b. yard 4 48

Per bag, delivered 1 22

Per barrel, delivered 4 88

Less 5 per cent.

Rebate of 20 cts. for empty sacks,

Improvement In Enamelled Ware Sales

Montreal—

Sales of enamelled ware are reported as being a little improved during the past two weeks, building construction under way now demanding enamelled fixtures. One jobber stated the recent activity was beyond expectations earlier in the season, and expressed belief that a fair amount of business will be obtained by dealers during the fall months. Little or no improvement has developed in the matter of quotations and a variation still exists among the different distributors. List prices less 35 and 5 per cent. however seems most general.

Sinks, roll rim 18x30 in. 23.00

Sinks, flat rim— .1 only 2 only 3 only

16 x 24..... \$ 7.50 \$ 7.40 \$ 7.30

18 x 30.. .. 8.70 8.60 8.50

20 x 30.. .. 9.90 9.80 9.70

Bath tubs, roll rim, 4, 4½, 5 feet

24 to 30 in. wide.. .. 51.40

Bath tubs, 5½ feet.. .. 57.10

Lavatories—

17x19" Apron F139 or P4045 15.30

18x24" Apron F154 or P3845 or

P3847.. .. 23.60

18x21" Apron F169 or P4205.. .. 17.60

17x19" Roll Rim, F241 or P4345.. 12.60

Less 35½ per cent.

Irwin Auger Bits Plus 5 Per Cent.

Montreal—

Through a change in discounts, Irwin auger bits are reduced in price. They are now quoted at list plus 5 per cent, while the No. 9 set now sells for \$5.30 and No. 12 for \$7.75 net.

Adjustment In Stoves and Furnaces

Montreal—

Prices on all heaters, furnaces, cast iron and steel ranges and cooking stoves show a revision, and all lines are reduced from 3 to 9 per cent. By applying the straight discount of 5 per cent. during June, July, August and September, where formerly the discounts varied in these months, dealers hope to increase future bookings for fall and winter requirements, as up to the present buying has been slack, and warehouses are now filled awaiting the demand.

Closets Sell For Less

Montreal—

Local jobbers have generally reduced their quotations on closet outfits, the standard outfit now selling for \$26.00. This reduction from former levels had been given by a few distributors during the past few weeks, but it was by no means general. As in enamelled ware, sales of closets have shown an improvement recently, due to the demand of building construction. Following are the new prices.

Closet, standard outfit.. .. 26 00

Do., with post hinge seat.. .. 26 75

Do., white vitro, vitreous china

or enameled iron, with wash

down bowl and oak or mahog-

any post hinge seat.. .. 29 75

Do., add for reversible trap bowl .. 1.25

Do., add for syphon jet bowl 7.00

Do., for ¾ in. valve on supply

pipe..... 1.50

Do., deduct for supply pipe..... 0.80

Do., deduct for floor flange.... 0.60

Do., wash-down bowl less spud.. 11.50

Do., reversible trap bowl, less spud 12.75

Do., syphon jet bowl, less spud.. 19.00

Do., "Richilieu" bowl.. .. 10.50

Do., extra for spud..	0.60
Do., oak, or oak-vitro tank, with fittings, less seat....	16.50
Do., wood strip seat and cover....	3.75
Do., post hinge seat and cover....	4.75
Do., add for bar hinge	0.25
Do., white vitro, vitreous china, or enameled iron tank, with fittings flush elbow and supplies less seat....	18.50
Less 10 per cent.	

Slower Movement of Wrought Pipe

Montreal—

There is at present a rather slow movement of wrought iron and steel pipe, the demand seemingly to have fallen off in the past two weeks. Jobbing houses, however, do not look upon the present slackness as being unusual as sales during the summer months usually record smaller volume, and it has been noticeable that the movement of piping has been more or less irregular all season. No further change is made in quotations since list number 52 was announced last month.

Dull Tone Continues In Boiler Tubes

Montreal—

Little or no improvement can be reported in the movement of boiler tubes, and the dull tone recently recorded still continues. The adjustment of quotations three weeks ago, when all sizes of the seamless tubes were brought to lower levels, has failed to produce extra buying, and dealers are satisfied that further reductions will not have the desired effect in this regard. Present quotations are the following:

Boiler Tubes—	Seamless	Lapweld
1 inch.....	25.00	
1¼ inch.....	26.00	
1½ inch.....	25.00	
1¾ inch.....	28.25	27.00
2 inch.....	27.80	23.00
2¼ inch.....	31.35	26.00
2½ inch.....	39.65	28.00
3 inch.....	46.80	33.00
3½ inch.....	60.35	41.00
4 inch.....	81.00	51.75

Variation In Valve Quotations

Discounts on the various lines of compression goods are unchanged with the exception of radiator valves, these being lowered in price through a change in discounts. The market on valves and bibbs generally, continues rather unsettled, as in the case of many other plumbing supplies, with the result that there is a variation in quotations among the different dealers. Following are present general discounts:

Compression work, standard	37 p.c.
Fuller work, standard	30 p.c.
Bath cocks, compression	30 p.c.
Basin cocks, Fuller No. 0.....	30 p.c.
Do., Nos. 1 and 2.....	30 p.c.
Flatway stop and waste cocks, standard	40 p.c.
Roundway stop and waste cocks, standard.....	37 p.c.
Brass steam cocks, standard....	10 p.c.
Radiator valves, standard	58 p.c.
Do., removable disc	58 p.c.
Globe, angle and check valves, standard	5 p.c.
Gate or straightway	16 10 p.c.
Jenkins Globe	10 10 p.c.
Jenkins gate valves	10 p.c.
Emco Globe Valves	20 p.c.
Emco Check Valves.....	20 p.c.

Scrap Prices Revised

Montreal—

Certain lines of waste materials show an adjustment in price, but little interest is attached to the revisions. Consumption continues very light in all scraps, the market having been next to stagnant during the spring and summer months. Following are nominal quotations.

Waste Materials—

Automobile tires.....	0.75
Rubber shoes.....	0.02½
Yellow brass.....	0.05
Red Brass	0.08½
Light brass	0.04
Scrap zinc.....	0.03 0 03½
Lead, heavy	0.04
Lead, tea	0.02½
Light copper.....	0.07¾
Heavy copper.....	0.10½
Wrought iron, R. Rd. No. 1 per gr. ton.....	10 50
Malleable scrap (ton).....	10.50
Pipe scrap (ton)	7 00
Heavy melting steel.....	7.50 8.00
No. 2 busheling.....	4.00
Boiler plate	8.00
No. 1 machinery cast	20.00

Lead Sheets and Solders Reduced

Montreal—

During the past few weeks two reductions have been made on solder quotations, while lead sheets have also shown lower prices. These declines are said to be in sympathy with lead, and other metals used in their manufacture on the primary market. No other price changes are recorded but practically all other products now have an easier tone. Following are the local current quotations:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50

NOTE.—Lead pipe is subject to a discount of 10 p.c.

Lead traps and bends	10 p.c. off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.....	0 10½
Lead sheets, 3 to 3½ lbs, sq. ft., lb.	0 10¼
Do., 4 to 8 lbs., sq. ft.....	0 09½
Cut sheets ¼ c lb. extra and cut sheets to size ¾ c lb. extra	0 25½

Solder, guaranteed, lb.....	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.....	0 21½
Do., wire, lb.....	0 35
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

General Lowering of Sheet Prices

Montreal—

Sheet quotations are now generally revised to lower levels. Black sheets show a reduction of approximately 50 cents per 100 lbs. on all gauges, also the American standard galvanized sheets. English standards have been reduced \$1.00 per 100 lbs. on both Queens Head and Fleur-de-Lis. American Canada plates are 50 cents per box lower.

The easier tones in the market for sheets can be stated as a reflection from market conditions at the U.S. mills, on practically all iron and steel products, this assisted by the disposition on the part of buyers to still further reduce their stocks. Reports from the Southern Mills are to the effect that while the base price is not changed generally, concessions are still named to obtain orders. In the case of English standard galvanized sheets, American competition is said to be the reason of the price decline.

Black Sheets

10 gauge.....	4.50 to 5.00
12 gauge	4.60 to 5.10
14 gauge	4.75 to 5.25
16 gauge	4.85 to 5.35
18-20 gauge	5.30 to 5.80
22-24 gauge	5.35 to 5.85
26 gauge	5.40 to 5.90
28 gauge	5.50 to 6.00
Sheets 36 in. wide, 20 cents per 100 lbs. extra.	

Canada Plates—

Dull	
18x24 X 52s	6.75 box
18x24 X 60s	6.85
18x24 X 75s	6.95

Welsh Canada Plates—

Polished.	
18x24 X 52s	8.25 box
18x24 X 60s	8.50 box

Galvanized Sheets—

U. S. Standard	
10¼ oz.	7.50 to 8.00
28 gauge	7.10 to 7.60
26 gauge	6.75 to 7.25
22-24 gauge	6.50 to 7.00
20 gauge	6.35 to 6.85
18 gauge	6.25 to 6.75
16 gauge	6.25 to 6.75
14 gauge	6.25 to 6.75
12 gauge	6.25 to 6.75
10 gauge	6.25 to 6.75

English Standard—

	Queen's Head	Fleur-de-lis
28 gauge	9.00	8.25
26 gauge	8.75	8.00
24 gauge	8.15	7.60
22 gauge	7.80	7.15
18-20 gauge	7.10	7.00

NOTE.—These prices are for full bundles; an extra charge of 25 to 35c per 100 pounds is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¼ oz. 25 cents per 100 lbs.

Bright Tin Plates—

20x28 X 100 lb. basis..	18.00 box
20x28 IC 112s.....	18.50
20x28 IX 112s.....	20.50
20x28 IXX 56s.....	11.75
20x28 IXXX 56s.....	12.50
Terne Plates—	
20x28 IC 112s..	17.50 box

No Change In Prices on Wastes

Montreal—

Cotton wastes and wipers continue to sell at unchanged figures, with a fair amount of business being done. Following the recent easier tone in cotton goods generally, when the last reduction was recorded in these products, the market basis with no present indication of easier prices.

is now said to be on a much steadier

Radiation Holds At Advance

Montreal—

No further change is made in quotations on either radiators or boilers, since the advance two weeks ago. According to one local manufacturer a steadier market may now be looked for on these products and unless some unforeseen situation develops, little change is likely to be made in quotations. When asked as to the recent advance in these lines, which closely followed a previous decline, he stated this decline was by no means warranted and the readjustment was necessarily made when the cost of raw materials and other productive costs were anticipated. Being of the heavier class of goods, freight rates were one of the chief factors that had to be considered, and a change in this direction would

have to be made before any further marked reduction might be looked for.

New Lower List On Corrugated

Montreal—

Corrugated sheets will now cost less, new lower list prices being announced, falling into line with other sheets which are recorded with easier levels. Business in this commodity is reported as quite satisfactory for the season of the year, and although sales are more or less irregular from week to week, the volume is being well maintained. It is expected also that the movement will be fairly brisk during the fall months, as increased activity is generally shown after the quiet summer period. It is also in the later months that smaller buildings are constructed of this material for protection against the winter weather. Following are new list prices and discounts.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	7 75
No. 26 gauge	8 25
No. 24 gauge	11 50
No. 22 gauge	14 00
No. 20 gauge	15 75
No. 18 gauge	21 00
Less 7½ p.c.	

Lighter than 24 gauge and wider than 27 inch, 75c a square extra.

Soil Pipe Lowered In Price

Montreal—

With the exception of the 8-inch, discounts on both soil pipe and fittings have been increased, thus lowering the price on these lines. As in the case of many other plumbing supplies, the local market on both pipe and fittings has been rather unsettled for the past two months, but discounts were not generally changed until this week. Building construction is also having its effect on these, sales are reported as having improved in the past few weeks. Following are the new discounts.

Soil Pipe

2 and 3 in., 25%

4 in., 30%

5 and 6 inch, 30%

8 inch, net.

Fittings

2 to 6 inch fittings, 40-10%

8 inch fittings, net list.

Good Volume of Eavestrough Sales

Montreal—

Although the busy season is now in hand in rural districts, farmers being actively engaged, fair volume of business continues in eavestrough and conductor pipe. The movement of these products has been well maintained since the open weather in the spring months, and increased activity is expected for fall.

Prices and discounts are holding unchanged at 60 per cent. off list on trough and conductor pipe, 55 per cent. off on elbows. However, with an easier tone on galvanized sheets and lower prices prevailing, a change in discount would not be surprising.

Variation In Fitting Quotations

Montreal—

There is no change made in the discount on the various lines of pipe fittings, but the irregularity noticeable in other lines throughout the jobbing houses, is reported as having now reached pipe fittings and quotations are by no means uniform among them. The variation is however in most cases slight, and

in the form of concessions made for quantity buying. A fair amount of activity is reported on the different lines, sales being small but numerous. Following are general local discounts.

Fittings—

Cast iron fittings.....	20 p.c.
Bushings, cast.....	30 p.c.
Bushings, malleable.....	30 p.c.
Flanges.....	27 p.c.
Plugs.....	30 p.c.
Flange Unions.....	20 p.c.
Malleable Unions.....	40 p.c.
Dart Unions, black.....	29 p.c.
“ galvanized.....	8 p.c.
Nipples ½ to 4 in. close and short.....	40 p.c.
“ long.....	50 p.c.
“ 4½ to 8 in. close and short.....	30 p.c.
“ long.....	40 p.c.
Couplings, 4 in. and under.....	20 p.c.
“ 4½ in. and larger.....	net list

Pound Goods—

	Blk.	Galv.
Class B.....	20	0 28
Class C.....	0 13	0 20
Add 10 per cent.		

Copper and Brass Sheets Reduced

Montreal—

With a slight reduction made in outside markets on copper and brass goods local quotations on sheets in both metals now show a decrease. Plain tinned copper sheets are reduced one cent per pound, base; plain 2 cents, and planished and tinned 2 cents. Brass sheets have declined 3 cents a pound. Revised prices are the following:

Copper—

	Base
Rods, per lb.....	0 32
Sheets, plain, 16 oz. and heavier.....	0 32
Sheets, plain tinned, 16 oz. and heavier.....	0 37
Sheets, polished and tinned, 16 oz. and heavier.....	0 40
Tubing, per lb.....	0 36

Brass—

Sheets, per lb.....	0 27
Rods, per lb.....	0 25
Tubing, per lb.....	0 35

Range Boiler List Holds

Montreal—

A new list on range boilers has failed to make its appearance on the local market as yet, notwithstanding manufacturers still claim existing levels are not in accordance with production costs, and higher prices are imminent. On the other hand, even with prevailing figures, jobbers are offering further reduced quotations. For example, the quotations on the 30 gallon boiler was flated at \$8.75, while to-day this boiler can be obtained at \$7.50, this condition offering little encouragement for increased prices. However, it is thought a new list of quotations would stabilize the market, but for the present the following prices are given:

Range Boilers—

	Standard	Ex. heavy
30 gallon.....	7 50	11 25
35 gallon.....	11 25	.. ..
40 gallon.....	13 50	16 00
52 gallon.....	20 00	.. ..
66 gallon.....	28 00	.. ..
82 gallon.....	35 00	.. ..
100 gallon.....	45 00	.. ..
120 gallon.....	54 00	.. ..

Little Change In Bar Iron

No further developments are announced relative to lower prices on plates, structural shapes, bars, etc., at the mills but shading of quotations continues among individual interests to secure orders, and further price declines are reported in some U.S. steel markets.

Locally the prices remain unchanged since the revision a few weeks ago. Jobbers stating that business in iron and steel has dwindled down to a small sorting demand. Following are unchanged quotations:

Common bar iron, 100 lbs.....	3 40
Refined iron.....	5 05
Iron finish machinery steel.....	3 60
Mild Steel.....	3 55
Single reeled machinery steel.....	5 50
Band steel.....	3 55
Spring steel.....	6 00
Sleighshoe steel.....	3 55
Tire steel.....	3 75
Toe calk steel.....	4 45
Harrow tooth steel.....	3 70
Mining tooth steel, per lb.....	0 23
Black Diamond tool and cast steel per lb.....	0 23

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles 50c. per 100 lbs. extra.

Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

Ingot Metals Still Depressed

Ingot metals continue in the midst of a depression, which has been more pronounced since the beginning of July. Market tendencies are dull and practically unchanged with the exception of tin which is again reported easier. Copper is a little steadier after having a weaker tone last week. Other quotations remain unchanged.

TIN—The firmer tone of this metal in London has given way to weakness, this being reflected on the local market with quotations one-half cent lower. Heavy stocks and a light demand denote the condition of tin, with little improvement yet in sight. Local price 34 cents.

COPPER—Price-cutting among producers in the U. S. is not quite so evident, and copper is now reported a little steadier. Local market continues very dull and the demand light. Quotations are unchanged at 17¼ cts. for electro, 17 cts. for casting.

LEAD—Bullish reports and continued strength are the features in the market of this metal. A fairly steady consumption, with stocks none too heavy assist toward a future steady market. Local prices remain unchanged at 6½ cents.

SPELTER—Although an improvement would not be surprising, local conditions are this week practically unchanged on spelter. East St. Louis shows little variation, but fluctuates between \$4.20 and \$4.25 base. Quotation unchanged at 7½ cents.

ANTIMONY—Antimony fails to improve either in price or market tendencies, although quotations are considered at extremely low levels. Chinese is quoted at 7½ cents, high grade English 8½ cents.

ALUMINUM—This metal is held at last week's quotations of 30 cents, with little change in the market. Aluminum has been the dullest metal on the list for some time, and an increased demand will have to be shown before any improvement can be reported.

MUELLER

Ground Key Cocks and Compression Stop, Supply and Drain Cocks

The Cocks illustrated on this page — A-1120, A-1185, A-1128, A-1251, A-1260 and A-1188 (reading down from left to right), represent a few of the many **MUELLER** patterns—each designed to fill a special need to perfection.

MUELLER Plumbing Brass Goods are made from Muellerite—a metal that is 85% pure copper. Muellerite resists corrosion better—can be handled with greater mechanical precision—takes a finer finish and a heavier nickel plating than common brass, which is less than 60% copper.

Once you begin to use **MUELLER** Plumbing Brass Goods, you will quickly recognize their superiority—in the ease with which they can be installed, and in the dependable service they invariably give. Every **MUELLER** Cock is tested to withstand 200 pounds hydraulic pressure without leaking.

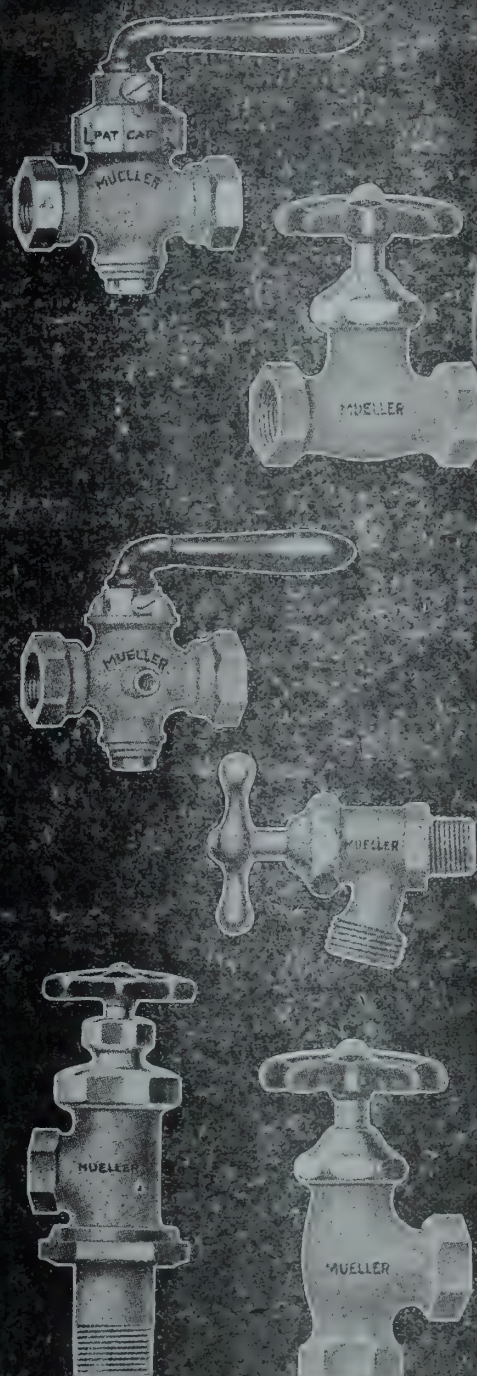
Write for detailed description and prices. Mail orders given immediate attention.

H. Mueller Mfg., Co., Ltd.
Sarnia, Ontario

**Water, Plumbing and Gas
Brass Goods and Tools.**

**American Factory at Decatur, Ill.,
U. S. A.**

Branches, New York, San Francisco
Mueller Metals Co., Port Huron, Mich.,
Makers of "Red Tip" Brass Rod; Brass and
Copper Tubing; Forgings and Castings in
Brass, Bronze and Aluminum; Die Castings
in White Metal and Aluminum; also Screw
Machined Products.



TORONTO

TORONTO, August 18.—Price recessions on various plumbing and steam-fitting supplies continue to be a feature of current market reports. Reductions in quotations on solder, boiler stands, bell traps, sink couplings, and easier levels in scrap material prices, comprise another table of important price revisions. Changes are again evident in the ingot metal markets, copper, tin and aluminum being lowered in price. A further recession is generally shown in quotations on the 30-gallon standard range boiler, this condition resulting from competitive price shading.

Lower Quotations On Solder

Toronto—

Solder quotations are again lowered, the extent of the change varying from a half to two cents per pound on the different grades. This is the third revision in prices on solder noted during recent months. The current reductions are contained in the appended lists. Other lead and zinc product prices remain unchanged.

LEAD AND ZINC GOODS

Lead pipe, list, per lb.	0 12½
Lead waste pipe, list, per lb. ...	0 13½
Do., over 8 in., list, per lb. ...	0 14½
Lead pipe is subject to a discount of	10 p.c.
Lead traps and bends.....	10 p.c.
Lead sheets, 4 to 6 lbs. sq. ft. in rolls, lb.	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size 1 ct. lb. extra.	
Solder, wire, per lb.	0 29
Do., strictly, lb.	0 22
Do., commercial, lb.	0 20
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

Price Shaded On 30-Gallon Standard Range Boiler

Toronto—

Sentiment among the trade generally as regards the proposed new list in prices on range boilers has now developed a doubting attitude as to the probability of any future changes. No announcement of any revision has been made, and a readjustment in quotations has hung fire for over two months. Even lower prices on the 30-gallon standard size boiler have been noted in some quarters, the average quotation now having been reduced to \$8.50, while \$8.25 each has been quoted for quantity buying. This is practically the only size selling at the present time. Nominal prices follow:

RANGE BOILERS

	Standard	Ex-heavy
30 gallon	\$ 8 50	\$11 50
35 gallon	9 50	13 80
40 gallon	13 80	16 50
52 gallon	20 40	25 20
66 gallon.....	28 08	34 80
82 gallon	36 00	47 40
100 gallon	45 60	56 40
120 gallon	55 20	64 80
144 gallon	78 00	93 00

Lower Prices On Boiler Stands and Cast Iron Specialties

Toronto—

Reductions are now announced in quotations on certain sizes of boiler stands, and other cast iron specialties. The extent of the decline is approximately 5 per cent. Bell traps and sink couplings are also affected by these lower prices.

Scrap Material Prices Sag

Toronto—

Reports of further declines in scrap iron and steel, and also on scrap metals, merely served to further accentuate the apparent dullness of the waste material markets generally. A lower range of quotations has developed on heavy melting steel, stove plate and on heavy copper, while prices on old rubbers are also reduced.

There appears to be some impression that prices will sag even lower on scrap materials, but any future improvement in general business conditions is expected to result in a betterment in the waste markets. Following are dealers nominal average buying prices for fairly large quantities:

WASTE MATERIALS

No. 2 bushelling	\$11 00
Heavy melting steel, gross ton	9 50 10 50
R. Rd. wrought iron, No. 1, gr. ton	11 00 12 00
Scrap pipe, gr. ton	6 00 7 00
Stove plate, net ton.....	11 50 12 00
No. 1 machinery cast, net ton	17 00 18 00
Heavy lead.....	3 75 4 25
Tea lead	2 25 2 50
Red brass	9 00
Yellow brass	6 00 7 00
Light brass	3 75 4 00
Heavy Copper	9 75 10 75
Scrap zinc	3 50 4 00
Old rubbers, boots and shoes	2 25 2 75
Lumberman's rubber boots	1 50 2 00
Auto tires	0 50 1 00
Solid tires	0 75 1 25

Fair Demand For Soil Pipe

Toronto—

Although the total volume of building for the present season is below expectations in this direction, yet a noticeable impetus has been given construction work during July and August. This condition has reflected in a brisker movement of soil pipe and fittings, and the recent revision in discounts has evidently had a similar effect in reviving interest. Current quotations follow:

Soil Pipe

2 and 3 inch, 25%.	
4 inch, 30%	
5 and 6 inch, 30%	
8 inch, net.	

Fittings

2 to 6 inch fittings 40-10%	
8 inch fittings net.	

Tube Sales Confined To Small Sizes

Toronto—

The dull period of trade in steel and steel products has had its effect on the current boiler tube movement. The volume of orders is still said to be disappointing, with the smaller sizes for re-

pair work, being the only favorable feature of an otherwise apathetic market. Prices continue to hold at the recent revisions following:

BOILER TUBES	Seamless	Lapweld
1 inch	\$26 00	\$ 1 10
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch.....	28 00	22 00
2¼ inch.....	32 00	25 00
2½ inch.....	40 00	27 00
3 inch.....	44 00	35 00
3½ inch.....	60 00	40 00
4 inch.....	75 00	50 25

Enamelledware Prices Hold

Toronto—

Quotations on enamelledware are nominally unchanged from the prevailing lists, and although a tendency towards unsettlement has been recently noted in some quarters, no further revision in either quotations or discounts has, as yet, been announced.

ENAMELLED WARE

Enamelled Iron Baths, 3" roll rim

4 ft. 6 in. 5 ft.	\$51 40
Do., 5½ feet	57 10
All Steel Enamel Bath, 4, 4½ or 5 ft., net	16 25
Do., do., 5½ ft., net	17 50

Lavatories—

17x10" Apron F139 or P40445...	15 30
18x24" Apron F154, P3845 or P3847	23 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
18x21" Apron F169 or P4205....	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60

Sinks, Flat Rim— 3 only 2 only 1 only	
16 x 24.....	\$7 60 \$7 70 \$7 80
18 x 30.....	8 50 8 60 8 70
20 x 30.....	9 70 9 80 9 90

All above list except lines marked net. Discount 20-10 p.c. off these prices.

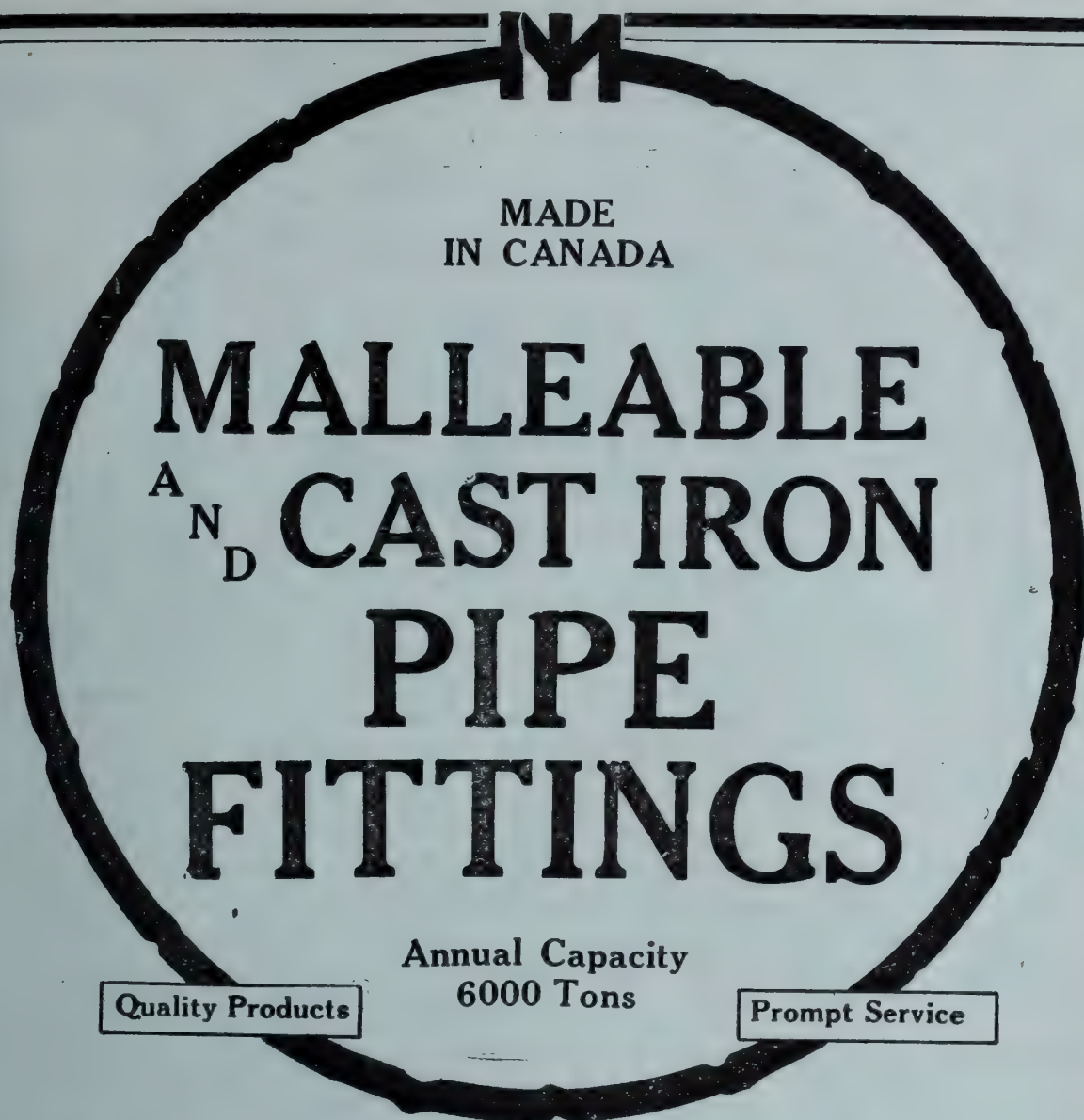
Closet Quotations Maintained

Toronto—

The market for closet outfits and closet fixtures has recently shown slight signs of improvement. This condition is attributed by manufacturers and distributors as a reflection of the recent building activity, and with the easier prices recently announced, a seasonable volume of sales is generally looked for. No revision in the following quotations has, as yet, been announced.

Closets—

Closet, standard outfit cak..	\$26.00
Do., with post hinge seat..	26.75
Do., mahogany vitro or Pussyfoot with mahogany post hinge seat and cover.....	29.00
Do., vitreous china with oak or mahogany post hinge seat and cover.....	29.75
Do., white, vitro or Pussyfoot with mahogany post hinge seat and cover.....	29.75
Do., white, vitro or Pussyfoot with cak post hinge seat and cover..	29.50
Do., enamelled iron tank with oak or mahogany post hinge seat and cover.....	29.50
Do., add for reversible trap bowl	1 25
Do., add for syphon jet bowl....	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe.....	0 80
Do., deduct for floor flange.....	0 60
Do., wash-down bowl less spud.	11 57
Do., reversible trap bowl less	



M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

**RECESSED
DRAINAGE
FITTINGS**

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

Halifax—GEO. D. HATFIELD, Bedford Chambers Winnipeg—HARRY F. MOULDEN, Confederation Life Building
St. John, N.B.—H. G. ROGERS, 147 Prince William St Vancouver, B.C.—CYRIL AMES, Wilton Block
Montreal and Toronto—From Head Office, Guelph, Ont.

spud	12 75
Do., syphon jet-bowl less spud..	19 00
Do., "Richilieu" bowl	10 50
Do., oak, oak-vitro or pussyfoot tank with fittings, less seat...	16 50
Do., white, vitro, pussyfoot, vitreous con a or enamelled iron tank with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover..	3 75
Do., post hinge seat and cover..	4 75
Do., add for bar hinge.....	0 40

Radiator Discounts Hold

Toronto—

There has been a noticeable increase in both orders and inquiries for radiators, according to current indications. The fact that building activity has been more pronounced during August, and that construction is now reaching the stage where the installation of radiators and boilers is of importance, has had a stimulating effect on these products. The revision in discounts recently announced is still being maintained, and with the present movement, dealers state that further changes depend primarily upon lowering of freight rates and other production costs.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in. \$1; 32 in. \$1.10; 30 in. \$1.15; 26 in. \$1.20; 23 in. \$1.26; 22 in. \$1.30; 20 in. \$1.36; 18 in. \$1.40; 16 in. \$1.50; 14 in. \$1.55; 13 in. \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent for water and 54 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent for water and 49 per cent for steam.

Discounts on 1-column hospital size, water 30 per cent; steam 31 per cent.

Wall Radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water:

Round.....60% off list
Square.....10% off list

Steam:

Round.....15% off list
Square.....5% off list

Easier Tone On Eavestrough

Toronto—

An easier tone has recently been noted in current markets on conductor pipe, eavestrough and elbows. While the present movement in these lines is not quite so brisk as a few weeks back, sales are still reported fair for this season of the year. The activity noted in small building has been reflected in the demand for eavestrough and pipe. Whether further price revision will be announced is stated as depending upon the future trend of cost elements. Prevailing quotations follow:

TROUGH (Ea-C)

O. G. Square Bead and half round.
Size in g'rth:

	Per 100 ft.
8 in.	\$15 90
10-in.	17 70
12-in.	21 20
Less 60 per cent.	
15-in.	28 80
18-in.	36 50

PIPE (Conductor)

Plain, round or corrugated
Per 100 ft. in 10 ft. lengths
2 in., in 10-ft. lengths, list.....\$ 18 40

3 in., in 10-ft. lengths, list.....	22 30
4 in., in 10-ft. lengths, list.....	29 60
5 in., in 10-ft. length, list.....	40 00
6 in., in 10-ft. lengths, list.....	49 00
Less 60 per cent.	

Conductor Elbows—

2 inch, list	5 25
3 inch, list.....	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

Corrugated Sheet Prices Third Lower Than Last Year

Toronto—

Trade in corrugated sheets is reported to have registered a falling off during recent days from the marked volume of activity noted earlier in the season. The recent price revisions complete a reduction of approximately one-third from the high quotations noted during 1920. No further changes have been announced, and the following quotations generally prevail:

CORRUGATED SHEETS

	Per 100 sq. ft.
No. 28 gauge	7 55
No. 26 gauge	8 25
No. 24 gauge	11 50
No. 22 gauge	14 00
No. 20 gauge	15 75
No. 18 gauge	21 00

Less 7½ p. c.
Lighter than 24 gauge and wider than 27 inch 75c. a square extra.

Pipe Sales Irregular

Toronto—

The current movement in pipe is still irregular, and sales have recently fallen off a little. This condition has been generally noticed throughout the present season. Pipe list No. 52 still remains in effect as follows:

Price List No. 52 July 11 1921

Size	Standard Butt-weld Pipe			
	Per 100 feet		Steel Gen. Wrot. Iron	
	Blk. Galv.	Blk. Galv.	Blk. Galv.	Blk. Galv.
1/8 in. ..	\$ 6 50	\$ 8 50	\$ 7 50	\$ 9 50
1/4 in. ..	4 56	6 60	5 76	7 80
3/8 in. ..	4 56	6 60	5 76	7 80
1/2 in. ..	5 87	7 40	7 56	9 10
3/4 in. ..	7 02	8 97	9 55	11 50
1 in. ..	10 03	12 92	13 77	16 66
1-1/4 in. ..	13 57	17 48	18 63	22 54
1-1/2 in. ..	16 23	20 90	22 28	26 95
2 in. ..	21 83	28 12	29 97	36 26
2-1/2 in. ..	34 52	44 46		
3 in. ..	45 14	58 14		
3-1/2 in. ..	59 80	75 44		
4 in. ..	70 85	89 38		

Standard Lap-weld Pipe

Size	Per 100 feet.			
	Steel Gen. Wrot. Iron		Blk. Galv.	
	Blk. Galv.	Blk. Galv.	Blk. Galv.	Blk. Galv.
2 in. ..	\$25 53	\$31 82	\$33 67	\$39 96
2-1/2 in. ..	38 03	47 97	50 90	60 84
3 in. ..	49 73	62 73	66 56	79 56
3-1/2 in. ..	60 72	76 36	80 96	96 60
4 in. ..	71 94	90 47	95 92	114 45
4-1/2 in. ..	81 23	102 87	1 12	1 33
5 in. ..	94 71	119 88	1 30	1 55
6 in. ..	1 23	1 56	1 69	2 02
7 in. ..	1 64	2 09	2 21	2 63
8 L in. ..	1 73	2 20	2 33	2 75
8 in. ..	1 99	2 53	2 68	3 17
9 in. ..	2 33	3 04	3 21	3 80
10 L in. ..	2 21	2 82	2 98	3 52
10 in. ..	2 84	3 63	3 83	4 53

No Further Revision In Compression Work Prices

Toronto.

No further revision in discounts on

compression work have been announced, and dealers state that little change is looked for. Current business continues in fair volume, and while no marked improvement has been recorded, yet a more optimistic viewpoint is developing in the trade generally. Following are the prevailing quotations:

Compression work, standard.....	37%
Fuller work, standard.....	30%
Bath cocks, compression.....	29%
Do., Fuller.....	25%
Flatway stop and waste cocks, standard	40%
Roundaway stop and waste cocks, standard	34%
Brass steam cocks, standard.....	10%
Globe, angle and check valves, standard	5%
J. M. T.	20%
J. M. T. C.	25%
J. M. T. Gate Valves.....	15%
Gate or straightway.....	16-10%
Jenkins Globe.....	10-10%
Radiator valves, standard.....	58%
Do., removable disc	58%
Emco J. D. Valves.....	20%
Emco Check Valves.....	20%
Webber Gate Valves.....	20%

Basin Cocks

No. 1 and 1, Fuller pattern.....	30%
Quick opening No. 3633.....	37%

Improved Tone Noted In Brass and Copper Goods

Toronto—

Business in brass and copper goods has recently recorded a slight improvement. A more optimistic viewpoint now prevails as regards the volume of fall trade, and with a revival of interest in the primary markets looked for during September, this condition is expected to reflect a gradual development towards a normal recovery in these products. The prevailing quotations follow:

BRASS

Sheets, base, per lb.	\$ 0 27
Rods, base, per pound	0 27
Tubing, base, per lb.	0 34

COPPER

Rods, base, per pound	0 32
Soft sheets, plain, 16 oz. and heavier, lb.	0 32
Do., plain tinned 16-oz. and heavier, lb.	0 40
Do., polished and tinned 16-oz. and heavier, lb.	0 45
Tubing	0 33

Fair Trade In Pipe Fittings

Toronto—

A slight improvement has been recorded in pipe fittings and with the current volume of building activity continuing throughout the fall period, a more satisfactory business is expected to develop. The market tone generally remains unchanged, and with no further price revisions having been announced, the current quotations remain as follows:

Cast iron fittings	20 p.c.
Plugs, cast iron	27½ p.c.
Do., solid	10 p.c.
Do., countersunk	not
Bushings	30 p.c.
Unions, 1-4 in to 2-in.	40 p.c.
Do., 1-8 in, 2 1-2 to 4 in.	35 p.c.
Cast Unions, blk., 1-4 to 2in. ..	29 p.c.
Do., 1/2 in., 2 1/2 in. to 4 in.	14 p.c.
Wrought Nipples—	
Close and short, 4" and under..	45%
Do., 4½" and larger.....	35%
Long, 4" and under.....	55%
Do., 4½" and larger.....	45%
Running Thread, 4" and under..	25%
Do., 4½" and larger.....	45%

WOLVERINE ONE-PIECE BATH AND BASIN SUPPLIES

—AND—

SIMPLEX BASIN CONNECTIONS

Adjustable

Flexible

Eliminate Leaks

Save Time

Give Permanent Satisfaction

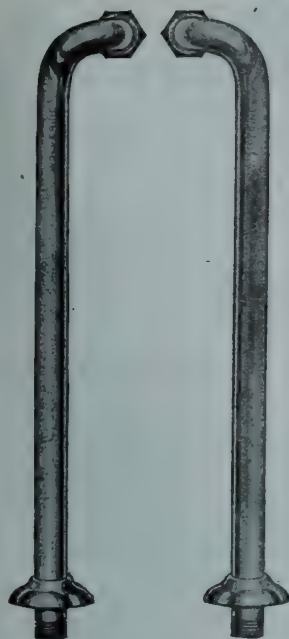


Figure No. 523



Figure No. 685R



Figure No. 683R

Labor Saved Is Money Made — Use Wolverine Supplies

Our complete line of Rubber Goods, Traps, Ball Cocks, Etc.
will please you. List your requirements now.

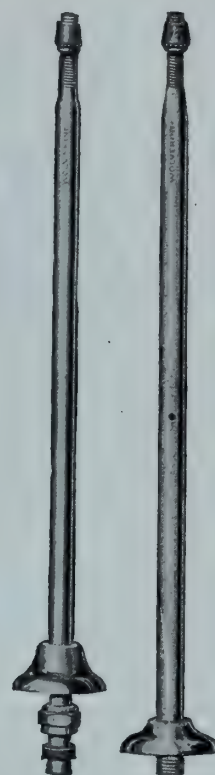


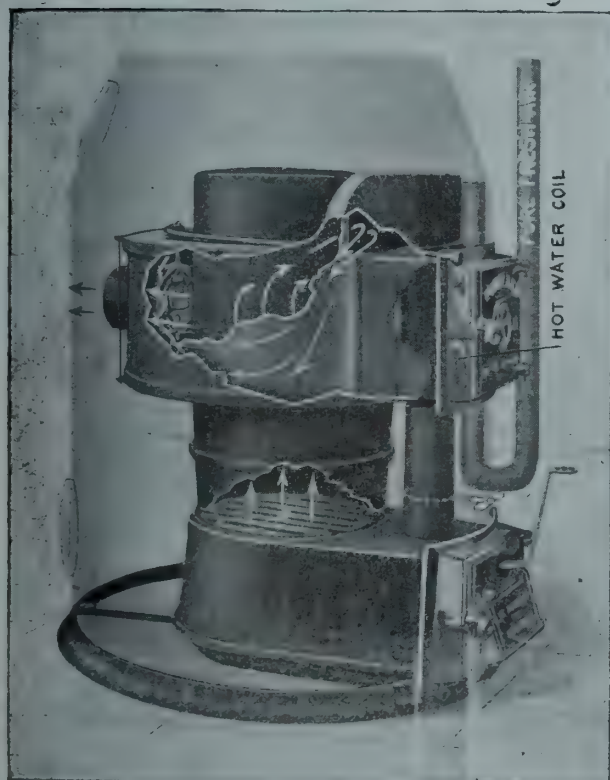
Figure Nos. 446-458

WOLVERINE

LIMITED

76 NELSON ST.

TORONTO



VULCAN

Pure Air Furnace

We want you to know about this furnace; it will be good for your business. You can install Vulcan Pure Air Furnaces very profitably. We want you to know the details and what's in it for you. Write us today. Just put on a post card, "Vulcan Pure Air Furnace" with your name and address, address it and mail it to us. These reliable furnaces are economical, easy to operate, have a greater radiating service, and the heavy metal makes them very durable. Read what impartial users have to say for them:

London, Feb. 11th, 1921

Gentlemen:—

I have used the Vulcan Pure Air Furnace for several years. I find it economical on fuel, easy to operate, and as it has a greater radiating surface than any other in its class. I have been well pleased with the results. I can recommend its use to any. I believe it to be durable on account of the heavy metal in its construction.

DR. COPELAND.

London, Feb. 11th, 1921

Gentlemen:—

I wish to express my opinion of the Vulcan Pure Air Furnace. After five years' experience with it in my thirteen-room house, I can truthfully state it to be the most economical, durable and all round satisfactory furnace of its class made.

MR. C. H. SUMMER,
R. R. No. 8.

London, Feb. 10th, 1921

Gentlemen:—

I have been using the Vulcan Pure Air Furnace for the past five years. Have had thorough satisfaction in heating a twelve-room house in which I live. Have found this furnace very economical on fuel according to the amount of fuel consumed by other furnaces not doing the amount of work that this Vulcan does. I recommend this Vulcan Furnace to its full extent for economy, satisfaction and durability.

W. H. ROBINSON,

The Vulcan Co., Limited

London - Canada

Wrought Couplings—		
Standard, 4" and under.....	25%	
Do., 4½" and larger.....	5%	

MALLEABLE FITTINGS

	Black Galvanized	
Class A	0 60	0 75
Class B	0 24	0 34
Class C	0 15	0 24

Look For Stabilization On Bar Iron and Steel Prices**Toronto—**

Reports recently received from southern steel centres indicate that an expectation is developing for prices on the primary markets to be stabilized shortly. This is primarily due to the fact that price shading between the mills has caused quotations to reach a level where, under prevailing conditions, further cutting to even lower standards is practically impossible. It has been stated that current prices contain no margin of profit for the producers, owing to the low ratio of activity in the steel industry generally.

With the present high standards of freight charges coupled with existing labor costs, prices on bar iron and steel are said to be decidedly low. It has been suggested in some quarters that prices on the primary markets might even be cut a little further, but such action is expected to depend upon future declines in freight and labor cost levels; for it is well known that further reductions would entail direct losses to the mills, as they are producing at such a restricted volume of capacity that current operations mean a small output obtained at a high degree of overhead costs.

The lower range of quotations shown on the appended list is now more generally prevalent on local markets, only one or two instances are making any decided effort to maintain the higher levels:

IRON AND STEEL—

Mild Steel bars, base.....	\$3.50 to \$3.75
Mild steel bands 3-16" base	4.00 to 4.25
Bar iron, base.....	3.50 to 3.75
Angle iron, base.....	3.60 to 3.75
Horseshoe iron.....	4.10
Tire Steel.....	4.70 to 5.95
Spring steel.....	9.50 to 11.50
Crucible cast sheet steel	30.00 to 35.00
Mining drill steel.....	20.00 to 23.00
Cast tool steel, medium.....	20.00
Cast tool steel high grade	30.00 to 36.00
Sleigh shoe steel.....	4.10 to 4.50
Norway iron.....	15.00
Toe caulk iron.....	5.40 to 6.40
Hoop steel.....	4.75 to 5.00

Develop Inquiry For Sheet Prices**Toronto—**

Interest in sheets and plates generally has been slightly more pronounced during the past week. This factor has encouraged dealers in some quarters that the future outlook is perceptibly brightening, while others again hold that the price shading activities in warehouse circles, only serves to further becloud future prospects in these markets.

A little increase in the volume of inquiry has been recorded and some report sales are gradually becoming heavier individually. The total orders received, however, cannot be compared with the many requests for prices, indicating that what purchases are being made are still for immediate requirements only, and that while more appreciative of the attractiveness of the prevailing market levels, buyers are maintaining a cautious attitude generally.

Following are the average quotations on fairly large quantities:

Plates—

10 gauge.....	4.75 to 5.00
12 gauge.....	4.80 to 5.05
14 gauge.....	4.85 to 5.10
16 gauge.....	4.95 to 5.20

Black Sheets—

14 gauge.....	5 10 to 5 60
16 gauge.....	5 20 to 5 70
18-20 gauge.....	5 30 to 5 80
22-24 gauge.....	5 35 to 5 85
26 gauge.....	5 40 to 5 90
28 gauge.....	5 50 to 6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 36 in. wide.

GALVANIZED SHEETS—

	Queen's Fleur-Head de-lis	
28 gauge.....	10.00	9.25
26 gauge.....	9.75	9.00
24 gauge.....	9.15	8.60
22 gauge.....	8.80	8.15
18-20 gauge.....	8.10	8.00

Premier and Apollo

10½ oz.....	7 90	8 40
U.S. 28.....	7 50	8 00
U.S. 26.....	7 20	7 70
22 and 24.....	7 05	7 55
18 and 20.....	6 90	7 40
16.....	6 75	7 30
12 and 14.....	6 60	7 20

An extra 40c per 100 lbs. is charged for Keystone brand copper bearing sheets.

An extra is now charge on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

WINNIPEG

W INNIPEG, August 18.—Price changes continue to feature the current western markets on plumbing materials generally.

Gavanized band steel, barbed wire, galvanized range boilers, black and galvanized sheets and Canada plates, all show reduced quotations. An advance is recorded in lead product prices, while turpentine and linseed oil quotations remained unchanged.

Band Steel Quotations Reduced**Winnipeg—**

A reduction has been made this week in quotations on galvanized Band Steel. Following are the latest selling prices. Band Steel (Galv.)

1 inch.....	8.45
1¼ inch.....	8.45
1½ inch.....	8.40
2 inch.....	8.40
2½ inch.....	8.40

Lower Price On Barbed Wire**Winnipeg—**

Lower prices are quoted this week on Barbed Wire and the new quotations are as follows:—

Lyman—

Winnipeg.....	\$4.75
Fort William.....	\$4.25

Plates, Canada

Prices nominal.	Toronto
Dull, 60 sheets	\$ 8 25
Ordinary, 52 sheets	8 00

Plates, Coke, Tin

Prices nominal.	Per box
IX. 20 x 28, 112 sheets	\$20 50
Do, 56 sheets	12 50

Plates, Charcoal, Tin

IC. 14 x 20 base	15 00
IX. do., do.....	17 00
IXX. do., do.....	19 00

Plates, Terne

Prices nominal.	
IC, 20 x 28, 112 sheets.....	\$17 50
F.O.B., Toronto.	

Easier Prices On Ingot Metals**Toronto—**

Owing to the fluctuations in exchange coupled with the continued depression in both southern and foreign markets, quotations on copper have again reached easier levels. The local price has receded to 17 cents, this being a decline of half-cent from the previous quotation.

Similar conditions have governed trading in tin, and the apathy and depression of recent weeks has resulted in a 2-cent concession in prevailing quotations. This change now brings the current local price to 35 cents.

Lead prices remain at \$6.75 and this metal is the only encouraging feature of an otherwise dull ingot situation.

There is little of new interest to record in spelter, and the dull period continues, with the lower quotation of \$7 00 still generally prevailing.

Antimony prices are maintained between 8 to 10 cents, with no new development in either trading or market trend to record.

Local quotations on aluminum have reflected the reductions on the primary ingot markets, and prices are now generally quoted at 28 or 29 cents.

Glidden—

Winnipeg.....	\$4.55
Fort William.....	\$4.10

Baker—

Winnipeg.....	\$4.45
Fort William.....	\$4.00

Revised Prices on Range Boilers**Winnipeg—**

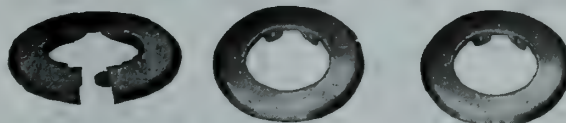
Prices on Galvanized Range Boilers have been revised and some sizes are lower in price. Following are the new price levels:—

29 gal.....	10.00
30 gal.....	10.00
35 gal.....	13.25
40 gal.....	16.25
52 gal.....	23.45
66 gal.....	33.15
82 gal.....	40.60
100 gal.....	62.50
120 gal.....	75.00



Plumbing Specialties in Stock

Cone Top Tank Bulbs
Fuller Balls
Compression Washers
Union Washers
Syphon Washers
Furnace Repairs
Bumpers
Sink Bolts
Closet Screw Bolts etc.
Closet Augurs
"Ubel" Semi Rotary Pumps



No. 15
Hinged

No. 16
Solid with set screw

No. 17
Solid

B & C Floor and Ceiling Plates

Plates shown above are the narrow pattern specially designed for Canadian trade, suitable for twin connection or one pipe work. Made from cold rolled steel thoroughly copper plated and nickel plated.

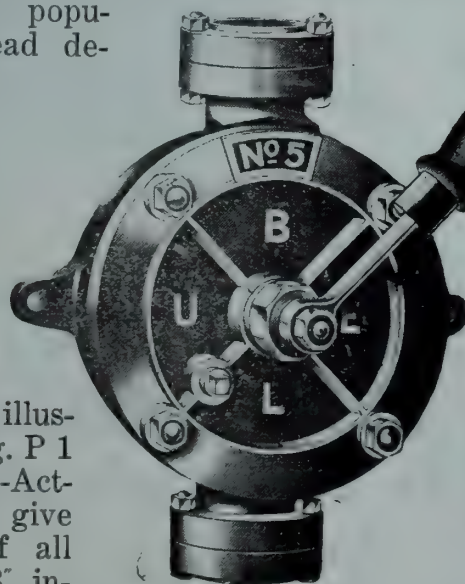
W. H. Cunningham & Hill, Limited

Sanitary and Heating Specialties

269 West Richmond Street, Toronto

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



Write for Catalogue Section P, which deals fully with UBEL¹ Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS
HEAD OFFICE
EMPRESS
FOUNDRY



3000 WORKERS
CORNBROOK
MANCHESTER
ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Hill, Ltd.

269 West Richmond St.

Toronto, Ont.

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from 1/2" to 3" inclusive.

A PIECE OF TABLE-WARE
may be solid silver without the
“sterling” stamp, the accepted “Hall Mark”
of quality.

But you don't know.

A Bank might be honest and efficient without Government inspection.

But you don't know.

A business concern may be absolutely responsible without a commercial rating.

But you don't know.

A publication may have the circulation it claims without verification by the Audit Bureau of Circulations.

But you don't know.

Better be sure.

The circulation of Sanitary Engineer is verified by the A. B. C. Sanitary Engineer is the only plumbing and heating publication in Canada that will supply an A. B. C. Audit.

A Step Forward in Efficiency

VICTORY RADIATORS

An improvement in engineering and design.

The Victory Radiator is made with two flat, hollow castings, one for the top and the other for the bottom, with tubes inserted in them. One tube is within the other. In this way, water is caused to circulate through the



headers and between the two tubes. This is a series of double tubes; 8 in the smallest castings, up to 54 in the larger ones. This adds the outside surface radiation of the larger tube, and the inside surface radiation of the smaller tube, to that of the top and bottom headers. So Victory Radiators

SAVE ON

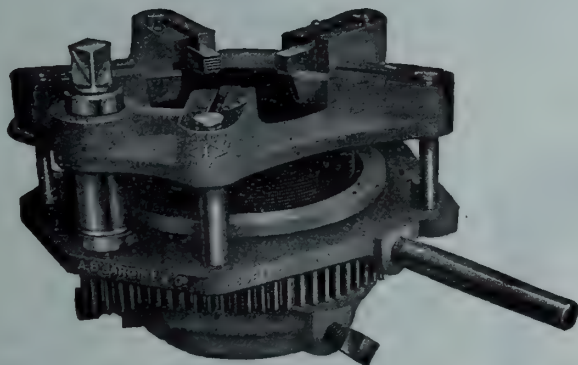
Coal, Shipping and Handling Weight, Cost of Installation and Fittings. Further investigation proves them still more efficient. Steel tubing is thinner and gives better radiation. The air circulation is better. The radiators occupy a minimum of space. They are artistic in appearance.

Since there is only $\frac{1}{8}$ as much water in Victory Radiators, it is quickly heated, and stimulates circulation of the water, making radiators hotter and radiating more heat. A smaller furnace can be used to heat the lesser quantity of water. Write for the remainder of the advantages.

MANUFACTURED AND SOLD BY

Montreal General Tool Company, Limited

2419 NOTRE DAME ST., EAST, MONTREAL



"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2½ to 6 in. inclusive.
Weight 120 lbs.

JARDINE

Pipe Threading Tools

In these effective tools the dies open out as the tool advances on the thread so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth.

TOLEDO

Pipe Threading Tools

Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble. They work easily, smoothly, rapidly and accurately. A. B. Jardine and Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

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269 Richmond St. W., Toronto, Ont.

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J. R. Devereaux & Co.
New Birks Bldg., Montreal Que.

Winnipeg and West:

Stanley Brock Ltd.
Winnipeg, Man.

COUPON

Name.....
Address.....

Sanitary Engineer

Sales Built on Confidence

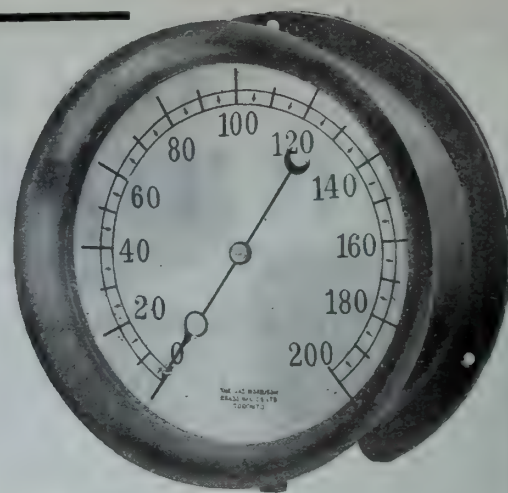
Morrison

Gauges

include gauges for every conceivable purpose—for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

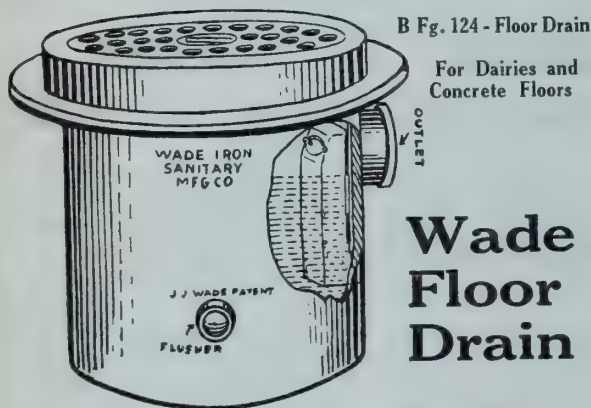
There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.



Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.

James Morrison Brass Mfg., Co, Ltd.

93-97 Adelaide Street West, Toronto



**Wade
Floor
Drain**

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

Write for Catalog "B"

Wade Iron Sanitary Mfg. Co.

551-553 Fulton St. CHICAGO, ILL

Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor Drains and All
Descriptions of Iron or Gravel and Grease Basins.



NO one can get more out of a tool than the manufacturer puts into it. Williams' Drop-Forged Chain Pipe Wrenches and Vises are sturdy and dependable in service because these qualities are built into them. They are the only chain pipe tools that offer proved and certified strength.

Improved "Vulcan" Chain Pipe Wrench
8 sizes for $\frac{1}{8}$ to 18" pipe

"Vulcan" Chain Pipe Vise
3 sizes for $\frac{1}{8}$ to 8" pipe.

J. H. WILLIAMS & CO., Limited

"The Drop Forge People"

77 Thorold Road St. Catharines, Ontario



Gem Automatic Air Valves

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.

The Beaton & Cadwell Mfg. Co.

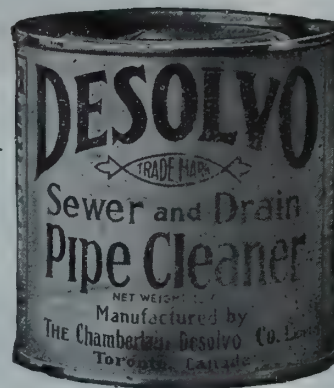
New Britain, Conn.

Eastern Agents:

J. R. Devereaux & Co
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Western Agents

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Winnipeg



**Saves
Tearing
Up the
House
and
Lawns**

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flowerbeds, until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

THE CHAMBERLAIN DESOLVO CO., Ltd.

199 Church St., Toronto.

Eastern Canada Representatives: Richardson and Bureau, 55 St. Francis Xavier St., Montreal, Ontario
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M. & T. COILS

EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited

TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street

WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

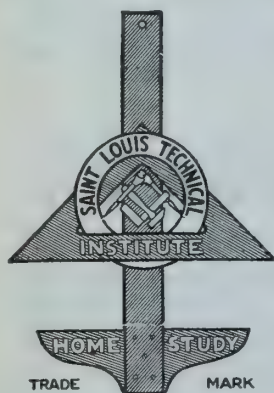
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HOYT

WIPING SOLDER
 Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG



Wanted—Tinnners, Plumbers, Steam Fitters

Men who want to finish their Trade Education.
 Men who are leaving Night School—continue your Course with us. Prepare for next Season's Rush for Advancement.
 Don't let your Employers Grade YOU the Way they are starting to do in the States. A High Class Training at Moderate Costs is our Policy, and is an Insurance against a C or D Grade.

We Teach you in your Own Home, Personal, Clear, Direct.
 Courses in SHEET METAL PATTERN DRAFTING.
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4543 Clayton Ave.

O. W. KOTHE, Prin.

St. Louis, Mo.

WE MAKE TANKS

FOR ALL PURPOSES

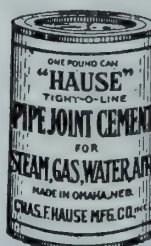
Air Receivers
 Boilers (Hot Water)
 Storage Tanks
 Hot Water Tanks

All Kinds of
 Steel Plate Work
 Smoke Stacks
 etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
 105 Ritchie Ave.
 TORONTO



Chas. F. Hause Mfg. Co., Inc.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
 ALLOWS NO LEAKS

Makes pipe work easy. Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.
 Made in Omaha, Neb., U.S.A.

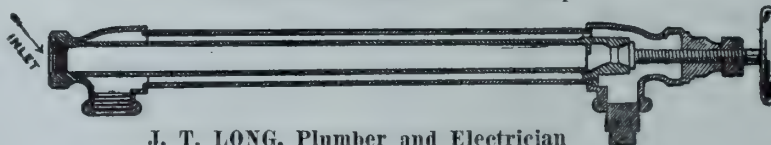
Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

It's advantages are many
 There is no possibility
 of freezing if it is set so
 as to drain.

Requires no valves ex-
 cept those which control
 the admission of steam to
 the apparatus to which
 the trap is attached.

The "LONG" Patent Steam Trap



J. T. LONG, Plumber and Electrician
 127 4th Ave., Maisonneuve, Montreal.

Regulated to work
 against 1 and 200 pounds
 pressure

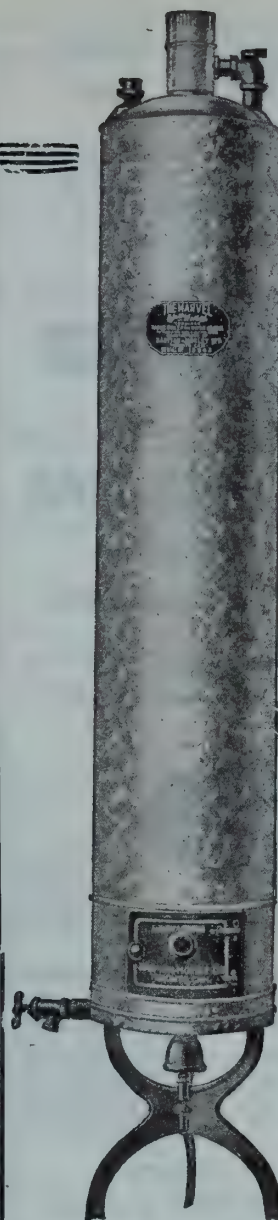
Will drain from 900 to
 1500 feet of one inch pipe.

Write to-day about it's
 other advantages

The Advertiser likes to know where you
 saw his Advertisement --- Tell him

INDEX TO ADVERTISERS

Amherst Foundry Co.	Inside front cover
Atlas Engineering Co.	8
Atlas Tank Works	38
Bastian Morley Co., Ltd.	39
Beaton and Cadwell	37
Canada Metal Co.	11
Canadian Brass Co.	2
Canadian Tube & Steel Products	40
Chamberlain Desolve Co.	37
W. H. Cunningham & Hill Co. Ltd.	33
Dennis Wire & Iron Works Co., Ltd.	3
Dominion Sheet Metal Corp., Ltd.	1
C. A. Dunham & Co.	5
Empire Brass Mfg. Co.	Outside front cover
Fittings, Ltd.	40
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	40
Hall Zryd Foundry Company, Ltd.	
	Inside Back Cover
Hause Mfg. Co., Chas. F.	38
Hourd & Co.	40
Hoyt Metal Co.	38
International Malleable Iron Co.	29
Jardine & Co., A. B.	35
Jenkins Bros.	9
Katie Foundry	40
Kerr Eng. Co., Ltd.	8
J. T. Long & Co.	38
Marks & Co.	40
McIntyre & Taylor, Ltd.	37
Montreal General Tool Co.	35
Morrison Brass Mfg. Co. Ltd., Jas.	36
Mueller Mfg. Co. Limited, H.	27
Pease Foundry Co.	6
Port Hope Sanitary Mfg. Co., Ltd.	20-21
Presto Mfg. Co.	4
St. Louis Technical Institute	38
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	40
United Brass Founders Co.	33
Vulcan Co., Ltd.	31
Wade Iron & Sanitary Mfg. Co.	36
Wallaceburg Brass Co.	7
Warden-King, Limited	9
Welch & Co., A.	40
Williams & Co., J. H.	36
Wolverine, Ltd	31



**Do
Your
Customers
Know That
THE
MARVEL
Storage
Gas
Water Heater**

Leads the world? Show them. Your customers are interested in a gas water heater that heats water in shortest time, with the lowest consumption of gas.

A gas water heater that is easier and quicker to install, pays a generous profit, and makes a neat job. Just the thing to build business in Sanitary Engineering business like yours.

To the plumber's interest—it takes less time, by far, to install a B-M Heater. You have at least seven less connections to make than when installing the ordinary side-arm heater, and your installation is made at a lower cost to the customer through the elimination of the extra pipe, couplings and fittings. A B-M Heater is delivered completely assembled, ready to install.

Investigate Today

Bastian-Morley Limited

World's Foremost Heater Builders

Hanson Street and Hillingdon Ave.

TORONTO, CANADA

Superior Plain



Closet Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18" lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



BULL DOG BRAND

Seats and Tanks

HOUD & CO., Limited
London, Canada



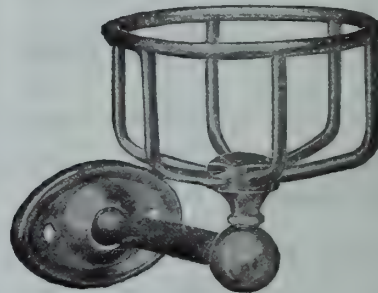
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FOR SALE

A. Welch & Son, Limited

304 Queen West, Toronto

THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO



No. 1
"TWEED"
Sanitary Closet
with mahogany
finished seat
and lid with
nickel-plated
hinges.

The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed as no plumbing required.

We also make an attractive line of "Tweed" Baths and other home conveniences.

LOUIS A. PAYETTE

304 University St., Montreal
Quebec and Eastern Representative

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

Write for price lists and literature.

The STEEL TROUGH & MACHINE CO.
TWEED, ONT., CANADA Limited

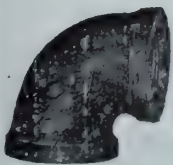
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Wholesale Only

Marks & Co.

Cor. John and Gore Sts.
Hamilton Ontario

Fittings Limited



Manufacturers of
Malleable and Cast
Iron Pipe Fittings

Oshawa

WROUGHT PIPE



Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask Your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PILOT PIPELESS FURNACE

Are You Selling This Furnace
The "PILOT"

First in Its Field

The many valuable features of the Pilot Pipeless Furnace are shown by the diagram at the left.

Probably the strongest evidence in favor of the Pilot Pipeless Furnace is the unbiased testimony of impartial third parties. We have printed many letters from these people who have become satisfied customers. Here is one more:

Hanover, Ont., March, 30th, 1921.

The Hall Zryd Foundry Co., Ltd.,
Hespeler, Ont.

Dear Sirs:

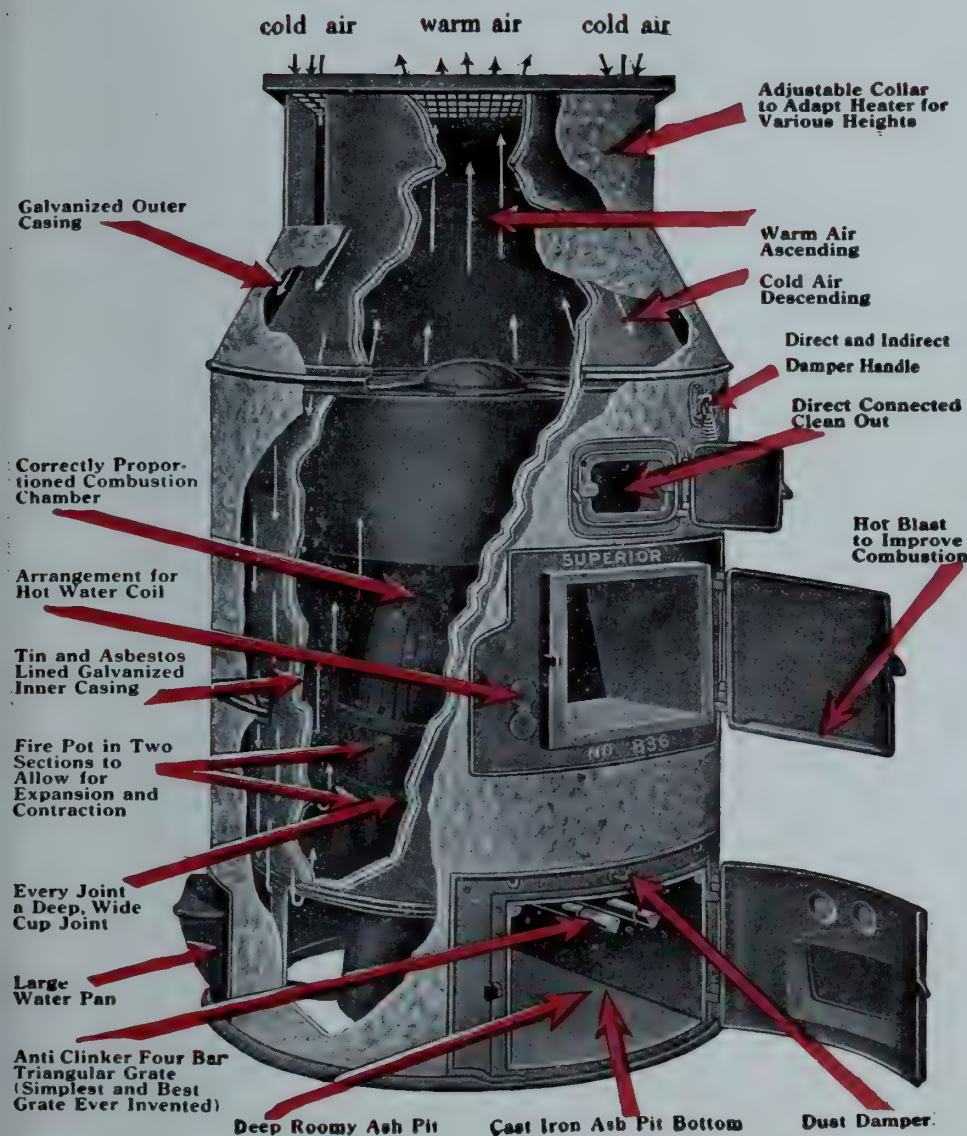
We had a Pilot Superior Pipeless Furnace installed by Mr. Geo. Rahn in our store and are glad to say it is giving the very best of satisfaction.

Previous to installing furnace we heated our store with a Quebec Heater and must say we are using less fuel now than before.

Our cellar is cool which makes it very convenient to keep vegetables etc. while our store is evenly heated, this being remarkable owing to our door being open quite often daily.

We believe this heating to be the best for store purposes.

L. F. DOEPEL



The Hall-Zryd Foundry Co., Limited

Western Branch: Post Office Box 687 Winnipeg, Manitoba

Manufacturers of Pilot Stoves, Ranges and Furnaces

Hespeler - Ontario



PERFECTO

OIL REGULATED

Flush Valves

Now made in Canada by Galt
Brass Company, Limited, under
their liberal 5-Year Guarantee.

Protected From Corrosion and Dirt

FLUSH VALVES as a rule have only one source of trouble—the water. And Oil-regulation positively avoids that.

The PerfectO Valve operates in oil—the water does not come in contact with the controlling parts. There is no possibility of corrosion or liming to impair the action of the valve; no danger of dirt clogging the small by-pass which governs the duration of the flush. The PerfectO operating parts are immersed in fine oil, and are entirely apart from the water. This insures smooth action—constantly uniform—and years of service without attention or repairs.

Illustrated Catalogue

See how the PerfectO looks in combination with various types of bowl and read full particulars in our NEW CATALOGUE. Yours for the asking.

GALT BRASS CO., LIMITED

GALT - CANADA

1921 ANNUAL FALL NUMBER

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, SEPTEMBER 15, 1921

No. 18

Withstands Pressure Test Up To 100 Pounds



A 889

Quick Opening Radiator Valve,
Wood Wheel, with Union.

This Empire Quick Opening Radiator Valve combines strength and stability with neat appearance.

Made of heavy red brass and tested to 100 pounds hydraulic pressure. The bright nickel finish is everlasting and will not peel or crack.

A full line of water and steam radiator valves, and radiator vents always kept in stock.

Empire products are carried by leading jobbers throughout the Dominion.

*"If it's an Empire product you know
it's right."*

Empire Brass Manufacturing Co., Limited

London and Toronto, Canada



One Piece Porcelain Enamel Lavatory



"Beaver" Porcelain Enamelled Bath, with $1\frac{1}{2}$ inch Roll Rim, for Fuller Double Bath Cock, connected Waste and Overflow, Painted exterior.

Dimensions—Width over Rim, $25\frac{1}{2}$ inches; Inside Width, 22 inches; Overflow Hole $2\frac{1}{2}$ inches; Height to Top of Rim $21\frac{3}{4}$ inches; Inside Depth, $15\frac{1}{2}$ inches; Supplies, $1\frac{1}{4}$ inches; Centre to Centre of Supplies, $3\frac{3}{8}$ inches.

Beaver Brand Porcelain Enamelled Ware

The "Beaver" Porcelain Enamelled, One-Piece Lavatory is illustrated above and to the left. It has D-shaped Basin, Patent Overflow and Shell Soap Dish, on concealed brackets. Complete with N. P. Overflow, Strainer, Chain Stay, Plug and Stopper.

Dimensions—Size of Lavatory 17 x 19 inches; Basin, 10 x 14 inches; Length of Back, 19 inches; Height of Back, 7 inches.

Roughing in Measurements—Centre to Centre of supplies 10 inches; Centre of Outlet to wall, $7\frac{1}{2}$ inches; Centre of Supplies to Wall, 3 inches.

"Beaver" Porcelain Enamelled 2-Section Laundry Tub with Roll Rim, cast in one piece, with separate Enamelled Recessed Back, on painted Iron Legs. Complete with Wringer Holder, N. P. Soap Dish, Plugs and Stoppers, Painted Exterior.

Dimensions—Length over all, $49\frac{1}{2}$ inches; Height from Floor to Top of Tub, 31 inches; Height from Floor to Top of Back, 43 inches; Front to Back Outside, $25\frac{1}{2}$ inches; Front to Back Inside, 21 inches; Depth Inside, $14\frac{1}{2}$ inches.

Porcelain Enamel 2-Section Laundry Tubs

Roughing in Measurements—Centre to Centre of Supplies 10 inches; Centre to Centre of Outlets, 8 inches; Centre of Outlet to Wall $6\frac{1}{4}$ inches; Centre of Outlet to End, 21 inches; Height from Floor to Centre of Supplies, 37 inches.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N. S.

AGENTS

Ontario:
Monarch Brass Mfg. Co.
71 Brown St., Toronto.

Manitoba & Northwest:
E. B. Plewes, 120 Lombard St., Winnipeg

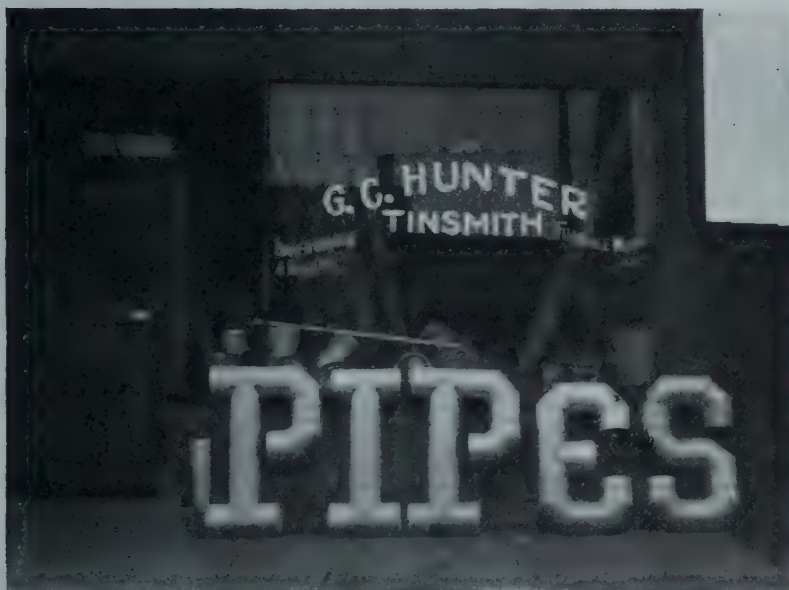


"Shamrock" Porcelain Enamelled Bath

TINKER TOM'S TALKS.

Tinker Tom Talk No. 323

GOOD STUFF

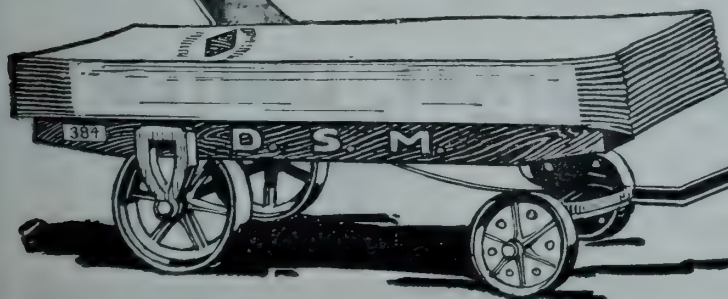


I wish you could see these sheet metal elbows, tees and pipes made up by G. C. Hunter, Tinsmith, Hamilton.

Excellent workmanship and beautiful stock, (Premier of course).

Here's a tip for a timely ad. for you Mr. Tinsmith—There's lots of fall work in sight and with reduced prices for the sheets your profit will be good.

TINKER TOM.



Sanitation Increases Average Span of Life

Etc.

COLUMBUS Aug. 31.—The average life of man has lengthened four years in the last quarter century despite the crime wave, war, automobile and other hazards.

"Within another generation the allotted threescore years and ten will be a thing of the past," Dr. George W. Hoagland said basing his claims on mortality statistics of the American Insurance Union of which he is secretary.

"Improvements brought about in sanitation the nationwide anti-spitting fight and other steps have contributed toward man's longevity," Dr. Hoagland said. "Severe epidemics of typhoid and malaria which formerly took such a huge toll of life no longer are known."

It is your duty to help along the good work.

CANADIAN BRASS COMPANY, LIMITED

GALT

TORONTO



CRANE VALVES AND FITTINGS FOR HEATING AND VENTILATING

*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe,
Plumbing and Heating Supplies.*

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO,
WINNIPEG, REGINA, CALGARY,
VANCOUVER.

Sales Offices:
QUEBEC, SHERBROOKE,
HAMILTON, VICTORIA.

**CRANE
LIMITED**

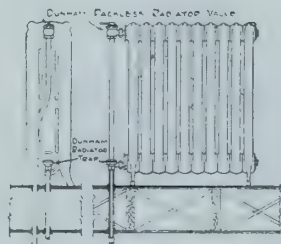
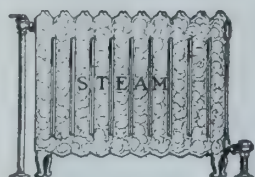
HEAD OFFICE & WORKS
1280 ST. PATRICK STREET
MONTREAL

**CRANE-BENNETT
Limited**

Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM.

Piping Connections to Radiators



*This is the fourth of a series of talks on steam heating, appearing monthly in Sanitary Engineer.

You will find all very interesting and of help in your daily work.

The control valve connection at the top of hot water type radiators, provides free and orderly admission of the steam. This steam without perceptible pressure behind it, floats across the radiator, displacing the air and as the air settles to the bottom of the radiator it is freely vented into the return piping through the Dunham Radiator Trap. The trap automatically prevents the waste of any steam from the radiator.

The Dunham Trap is usually located at the opposite end from the supply connection, but on radiators of standard floor type, not over forty inches long, it may be located at the same end as the steam supply, and the air will vent from the radiator equally as well as by the first method. The advantage of making valve and trap connections at top and bottom same end of radiator, is the simplifying of the roughing in of the job.

Since steam at low pressure is used, the burrs at the ends of all pipes should be removed so as to give full effective area in the pipes supplying the radiators—otherwise the pipes may not handle the amount of steam they should to supply the radiator.

Another very important point in installation is the grade of SPRING CONNECTIONS. These should have very liberal grade so that expansion of riser or settling of building will not create a pocket in the pipe where condensate will collect. Any such pockets destroy free and even circulation and necessitate the raising of pressure on the boiler to force the water out of such pockets. This operation is always accompanied with the objectionable hammering in pipes.

When roughing in a job, fasten your spring connections into proper position so that mechanics of other trades will not disturb them. This is of vital importance where spring connections are concealed and applies to both steam supply and return pipes.

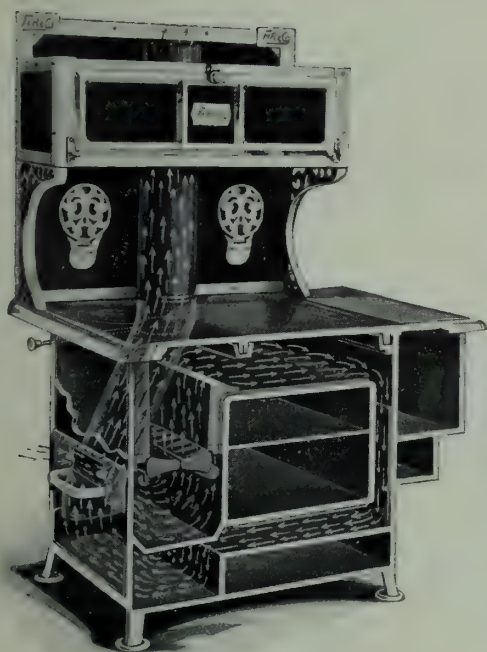
The DUNHAM
HEATING SERVICE
(Made in Canada)

C. A. DUNHAM COMPANY Limited, TORONTO, Ontario
Halifax Vancouver Winnipeg Ottawa Montreal Calgary

London: 233-A Regent Street, W. I.

Fireco

Ranges & Heaters



A careful and unbiased calculation of kitchen ranges proves that the saving of 50% of fuel increases the value of the range by \$200. Fireco is the line for you to make profitable sales this winter.

It makes an excellent appearance, interests your customers, and is a striking range to show. It is filled with convincing selling points that make it easy to sell.

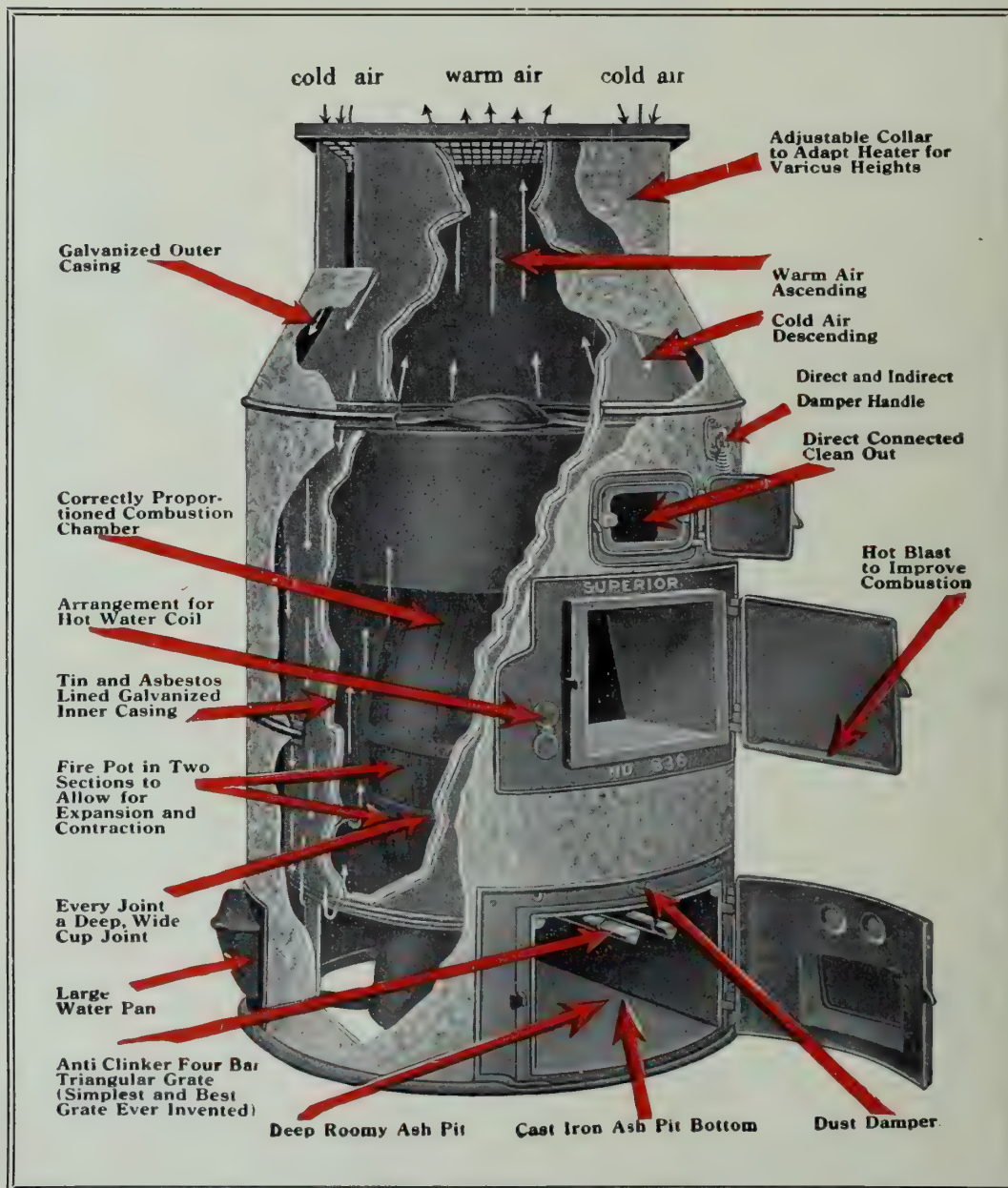
Fireco saves fuel because it conserves heat; makes combustion complete; prevents flues being filled with soot; gives absolute control of the fire and no gas can escape from the range; it requires 50 per cent. less labor to operate, with 50 per cent. less ashes to struggle with, and it gives its delighted owners 100 per cent. more cooking and heating satisfaction.

The Hall-Zryd Foundry Co., Limited
Hespeler, Ontario

Western Branch, P.O. Box 687, Winnipeg



HALL





Saves 25% to 50% of Fuel !

PILOT

Superior Pipeless Furnace

The Pilot is superior. It gives an abundance of heat; saves 25 per cent. of the fuel; gives more sanitary heatings; is the most up-to-date and satisfactory heating system in existence today.

It is very profitable to install, and very easy to install. We co-operate with you, if you desire, in making sales. Isn't this about the proposition you are looking for?

Write today and secure the money-making agency.

The HALL ZRYD FOUNDRY COMPANY, Limited

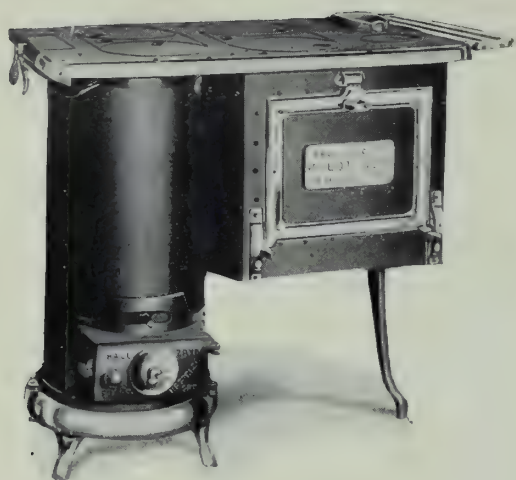
Manufacturers of Pilot Stoves, Ranges and Furnaces

HESPELER, ONTARIO

WESTERN BRANCH : P. O. BOX 687, WINNIPEG, MAN.

PILOT QUEBEC

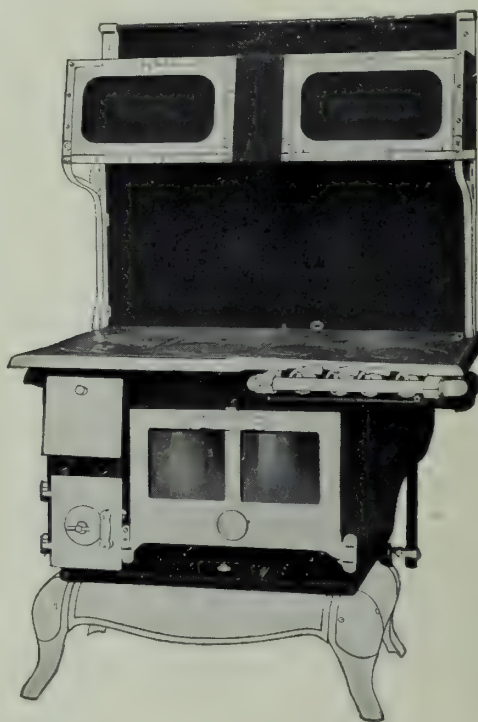
With Oven



Pilot Combination No. 21

AS can be seen from the illustration at the right this is a handsome range, neatly and tastefully trimmed. Not only does it interest your range-buying prospects by its appearance, but it thoroughly convinces them by its features of good workmanship, sensible design and high-grade materials. Notice, especially, the warming closets, and the oven with glass doors and thermometers. The gas side is free from projecting pipes, etc.

Cooking Top 21 ins. x 33 ins.
 Four 8-in. Cooking Holes.
 Inside Dia. of Fire Box, 10 3-4 ins.
 Large Oven, 14 ins. x 18 ins. x 10 1-2 ins. High.
 Ash Pan, 8 1-4 ins. x 10 1-4 ins. x 3 ins. Deep.
 No. 8-4 without Grate.
 No. 8-40 with Grate.
*"Can be supplied with Galvanized Iron
 or Copper Reservoir. High Shelf, or
 High Closet."*

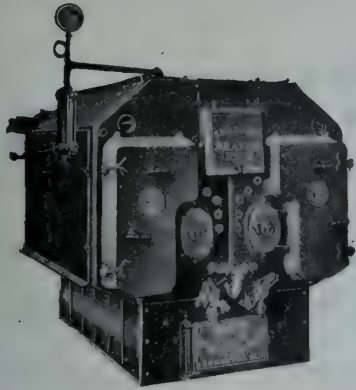


The Hall Zryd Foundry Co.,

Limited

Hespeler, Ontario, Canada

Western Branch: Winnipeg, P.O. Box 687

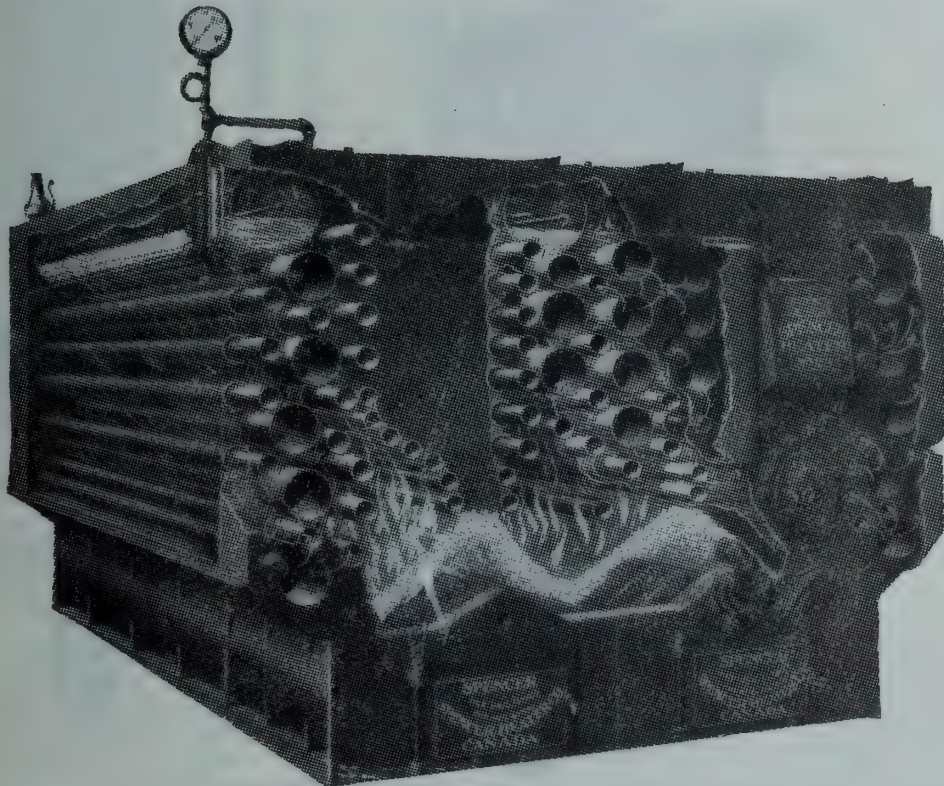


Steam—27 sizes, 375 to 10,000 sq. ft.

The Greatest Heating Machine Known

Is the Spencer Self-Feeding Boiler

Made-in-Canada



This is a cut of the double series type of Fire and Water-tube Steel-constructed Steam Boiler. These Boilers require no brickwork, they are sectional in construction, and can be taken into the basement of any building. They are the simplest Boiler on the market to clean or repair.

*If you don't know the facts concerning
the Spencer "It's time you did."*

Spencer Heater Co. of Canada
LIMITED

68 Adelaide Street East, TORONTO

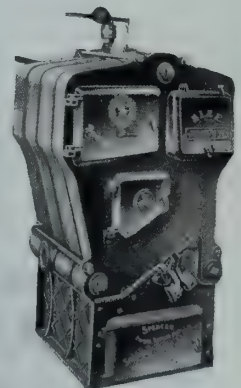
71 St. James Street
MONTREAL, Que.

185 Portage Avenue East
WINNIPEG, Man.

PLANT : PENETANG, Ont.

They are the most efficient type of Boiler that can be operated for heating any type of building.

Burning the various grades of Coal (hard or soft) Coke, Fuel Oil, or Gas in a smokeless manner, and with a constant service.



Hot Water—10 sizes
600 to 3600 sq. ft.

Soil Pipe and Fittings

QUARTER BENDS	EIGHTH BENDS	"T" BRANCHES	TRAPS
FIFTH BENDS	RETURN BENDS	"Y" BRANCHES	CLEANOUTS
SIXTH BENDS	OFFSETS	"TY" BRANCHES	SLEEVES AND HUBS

Daisy Hot Water Boilers

*Over Sixty-
In Use. They*



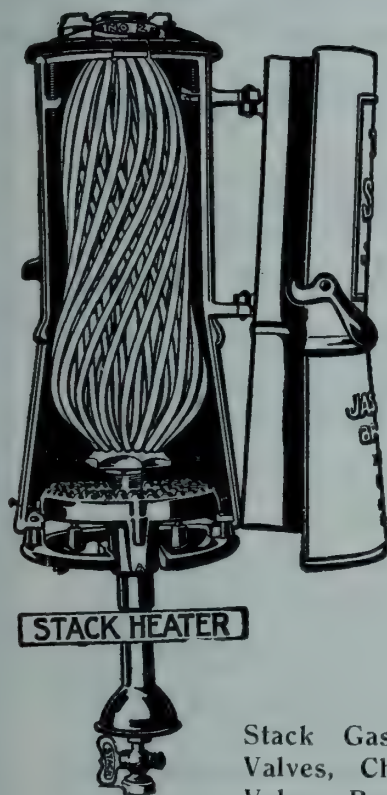
*Thousand Now
Must be Liked!*

They are popular and most often installed because they are good. Thousands of householders throughout the Dominion have learned of the simplicity, economy, comfort and ease of operation of Daisy Hot Water Boilers.

You will never have to argue to install a Daisy Boiler, and, every one installed, throughout its long life, boosts your business.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 Simcoe St., TORONTO



MORRISON PRODUCTS

Skilfully designed—Only Perfect
Patterns Used—Perfectly Cast and
Finished—Famous for Satisfactory
Service—Specified on Most Draw-
ings—Installed on most jobs—



We Manufacture

Stack Gas Water Heater, Automatic Cellar Drainer, Stop Valves, Check Valves, Gate Valves, Safety Valves, Relief Valves, Reducing Valves, Steam Traps, General Boiler Mountings, Injectors, Ejectors, Inspirators, Jet Pumps, Pressure Gauges, Pipe, Tools, etc. Vacuum Gauges, Ammonia Gauges, Gauge Board Outfits, Lubricators, Pipe Fittings, Whistles, Engine Indicators.

It Pays to Sell Morrison Products

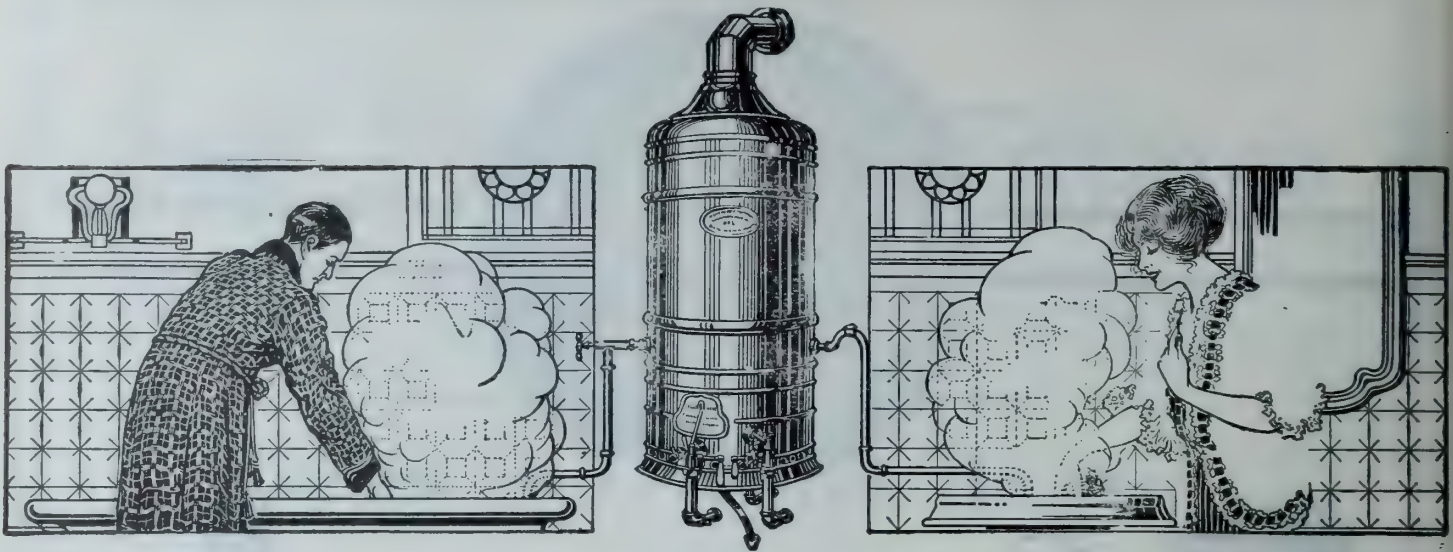
The James Morrison Brass Mfg. Co.,

Limited

93-97 Adelaide St. W.

Toronto, Ont.





Every Gas Burning Home a Prospect

Bath Water must be heated in some way or other time and again, week in and week out, year in and year out for every member of the family. Heating bath water has been accomplished in various ways,—tea-kettles, pots, pans, and whatnot; but the home with the

HUMPHREY Instantaneous Bath Water Heater

SUPPLIES Bath Water piping hot, without a moment to wait. Just light a match, ignite the pilot, turn on water and gas, and instantly your bath is on the way. The water is instantly heated as it flows, in any quantity you want. The sale of the HUMPHREY INSTANTANEOUS BATH WATER HEATER opens up a wonderful market.

Every home wants one of them, and their sale is profitable for you.

Made in two sizes,

No. 8—2½ gallons per minute.

No. 6—3 gallons per minute.

The HUMPHREY SHOWER BATH WATER HEATER makes it possible to take either a tub or shower bath. Comes completely equipped with overhead shower, already for installation.

Get prices and catalog, and ask for names of distributors in your territory.

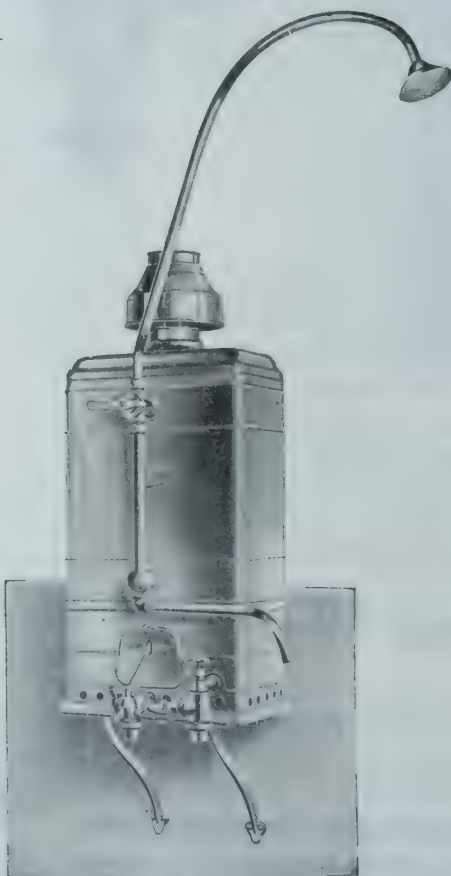
The HUMPHREY line of Gas Water Heaters is very complete,—making it possible to secure your entire demand on one account.

HUMPHREY AUTOMATIC GAS WATER HEATERS.

HUMPHREY MULTI-COIL STORAGE SYSTEMS.

HUMPHREY COPPER COIL TANK WATER HEATERS.

Complete information with prices furnished on request. Start selling this line now, and add materially to your profit for 1921.

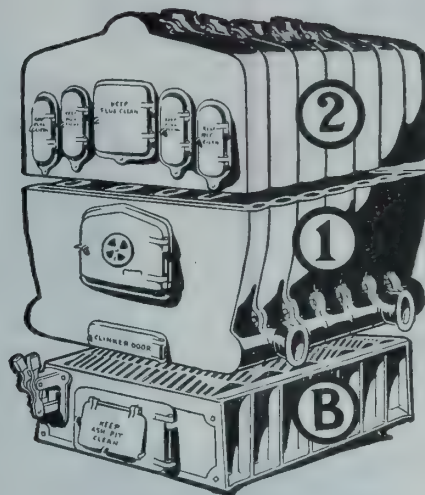


Shower Heater

HUMPHREY COMPANY
KALAMAZOO, Div. Ruud Mfg. Co. MICHIGAN, U.S.A

For Sale Two Stories And a Basement

By Booster Binx



Just the day before you and I had that talk about folks not knowing the things they know, I saw the above "For Sale" sign hanging in a Newark shop window. At once popped into my mind that that sign exactly described a Burnham.

The basement—the ash pit.
The first story—the combustion chamber.

The second story—the fire travel.
The for sale—well isn't that what we make Burnham for!

Knowing just how curious most you fellows are, I just hunted up some photographs showing the interior of the basement and both stories.
Sure you can keep them till I come again.

And by the way, next time I come, want to tell you what two tools and two men, did to one boiler.

B

The ceiling of the basement is a hot one. Besides, the plaster is loose. Luckily only half of it drops down at a time. There's always a safety hall because the ceiling shakes $\frac{1}{2}$ at a time.

1

My, my! but the second story is a sweltering place. You go bumping around against the side and even jump up and hit the ceiling a time or two before you find the stairs up into the second story.

2

But the minute you get up-stairs and look for a place to sit down; something or somebody keeps you running up one hall and down the other, until before you know it, you are out on the sleeping porch and jumping up in the air and floating off in the clouds like you were a natural born fairy.



Lord & Burnham Co. Limited
of Canada

(Boiler Department)

Royal Bank Bldg.
TORONTO

Factory:
[St. Catharines, Ontario





Fig. A 36

For fifteen years we have put all the progress of science, engineering and shop practice into Sovereign Hot Water Boilers. To-day they stand supreme.

On ordinary boilers we offer: the largest first sections, individual clean out doors, deeply corrugated fire pot, clinker-proof grate bars, damper attachment on boiler, correctly "staggered" sections. Sovereign Hot Water Boilers will burn hard or soft coal.

Taylor-Forbes

Canadian Sectional Steam and Hot Water Boilers

Here is shown the 1921 pattern of Taylor-Forbes Canadian Steam Boiler.

Heating Engineers will at once observe that this is a highly efficient boiler. The design, the many special features visible in the illustration, and the general effect of up-to-dateness will commend it to thoughtful heating engineers.

We recommend that you specify Taylor-Forbes boilers, because, in service, they will reflect credit on your judgment, and bring you future business. They assure complete satisfaction in use.

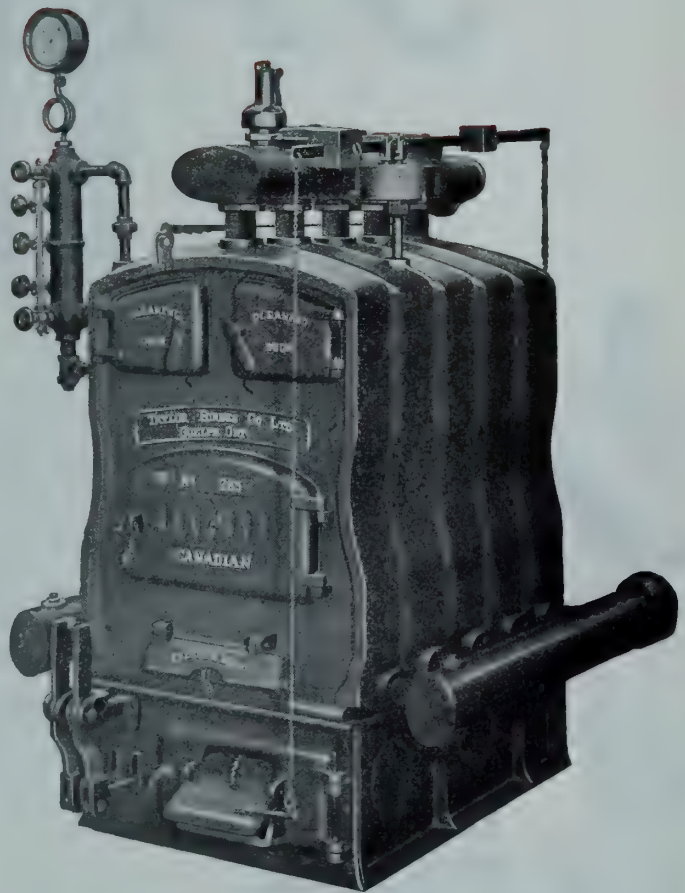


Fig. A 49

TAYLOR-FORBES COMPANY
 Head Office & Works
GUELPH

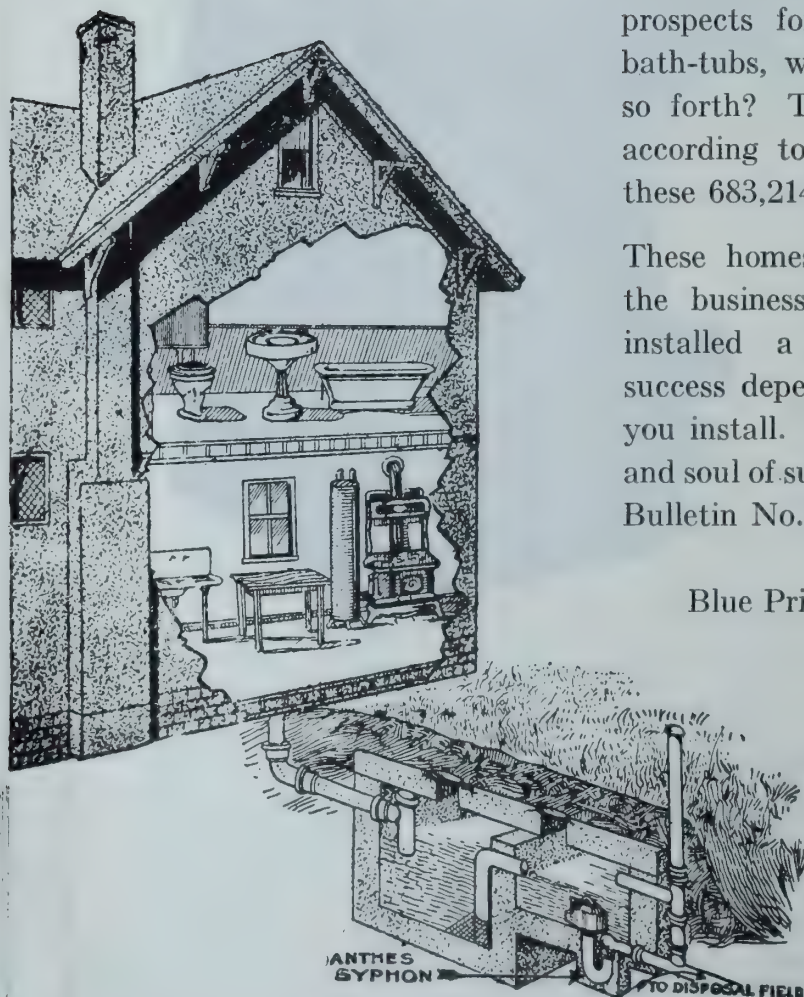


ANTHES SYPHONS

Anthes Syphons mean something to Canadian Sanitary Engineers. Would you like 711,681 new prospects for the installation of water-closets, bath-tubs, wash-basins, range boilers, sinks and so forth? There are 711,681 farms in Canada according to Canadian government figures. Of these 683,214 have outside toilets.

These homes become definite prospects for all the business we have named when you have installed a sewage disposal system. Your success depends on the efficiency of the system you install. Anthes Syphons are the very heart and soul of successful sewage disposal plants. Our Bulletin No. 2 will help you.

Blue Prints and Specifications furnished.





Anthes Syphons operate according to purely natural laws. There are no moving parts to stick or cause trouble. They are seamless and made in one piece. Their construction makes them very easy and simple to install.

We also make superior cast iron Soil Pipe and Fittings. When you specify, specify Anthes Soil Pipe and Fittings.

Write for Bulletin No. 2, it will pay you.

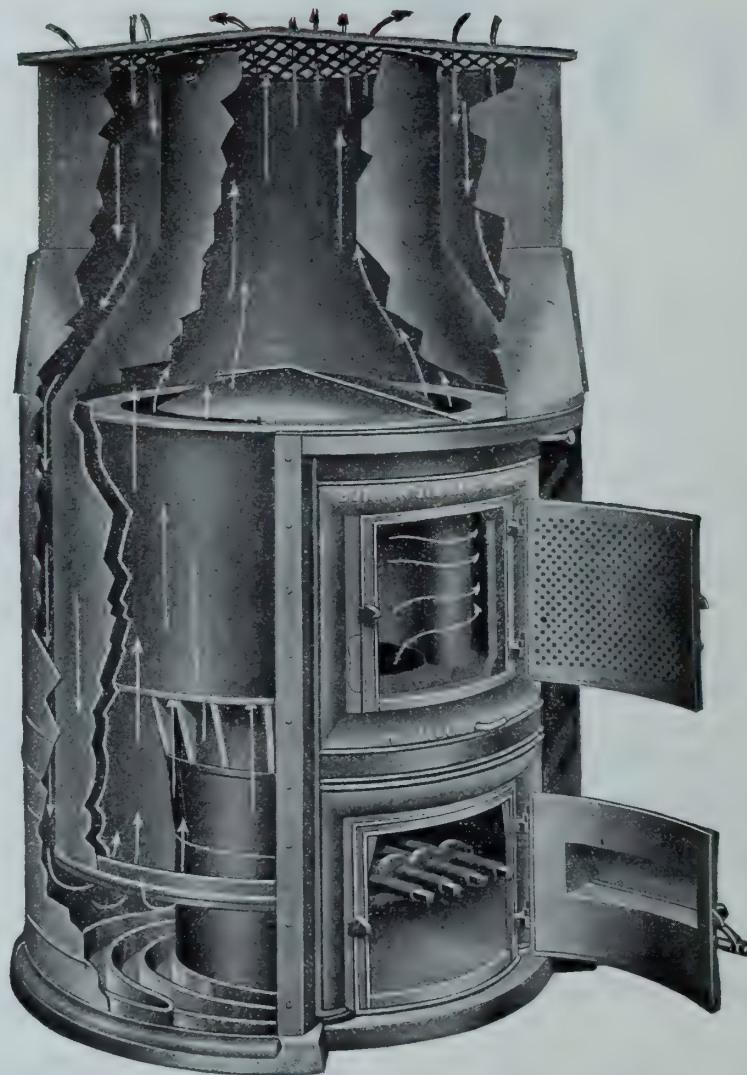
Anthes Foundry

Limited

Toronto and Winnipeg

THAT WONDERFUL

The Finest One-Register



Secure the Agency

Manufactured by

The Burrow, Stewart
Hamilton,

Branches: TORONTO, WINNIPEG, MONTREAL

JEWELL PIPELESS

Furnace on the Market

Give them what they want! Your clients are looking for a real Quality Heater that will give good service for many years. Give it to them; because it means that the Wonderful Jewell Pipeless will be boosting your business all those years.

When you install a Jewell you help yourself and your business more than by the profit on that one deal.

All materials entering into the manufacture of "Jewell" Furnaces are highest grade and they are erected by skilled mechanics, under the supervision of experts, which ensure the dealer and user entire satisfaction.

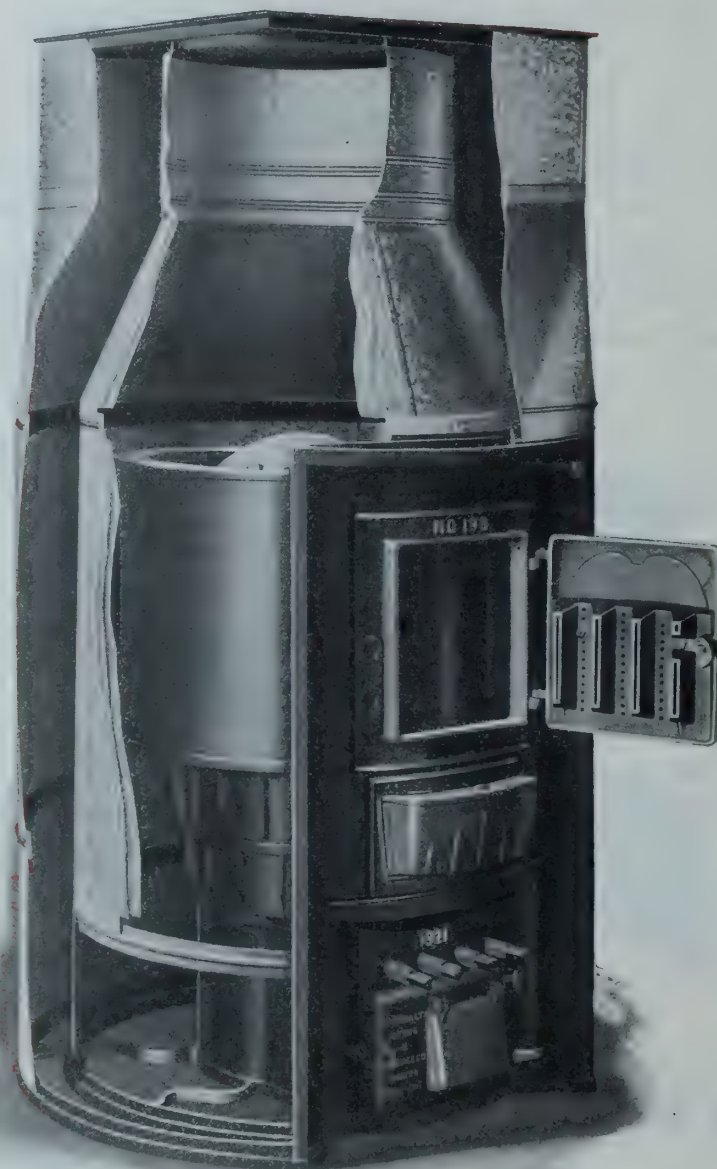
For Your Territory Now

& Milne Co., Limited
Ontario



BANNER

Pipeless Furnace



The BANNER PIPELESS FURNACE is an assured fact. It is not a make-believe or a makeshift for a furnace. It will heat a house comfortably all over with the minimum amount of coal and attention. Thousands of Banner Pipeless Furnaces are actually in operation throughout Canada. They were thoroughly tried during the past two winters. We have a booklet of testimonials gathered from all parts of the country, that we will be pleased to send you, undisputed facts regarding the efficiency and economy of "The Banner Pipeless Furnace".

We guarantee it and stay right behind the installer. We don't claim that we can heat every house satisfactorily, with the Pipeless, but where the Pipeless is not recommended we can fill the bill with our regular Banner Pipe Furnace.

Write for literature and book of testimonials and let us tell you more about this wonderful heating plant.

We want agents in many places.

*Our new furnace catalog
information for the installer
for your copy.*

The Galt Stove & GALT

NER

Pipe Furnace



With a Banner Furnace installed as the heart of the system, there is no form of heating that can compare with warm air heating for economy and efficiency.

Warm air heating provides an ideal thorough method of ventilation and heating. No other system will respond so quickly to the fire heating up a cold house in from one-half to one-sixth the time required by any other system.

Heating Engineers agree that the most efficient method of heating the average home is by warm air and it costs only about one-fourth as much as to install a hot-water or steam heating system.

The Banner Furnace represents the most satisfactory and efficient warm air system you can install.



*With a lot of useful in-
ready, be sure and send*

Furnace Co., Limited

ONTARIO

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, SEPTEMBER 15, 1921

No. 18

CONTENTS

The Plumbing Trade Outlook.....	25-26
Tiled Display Brings Good Results.....	27
Average Tinsmith is a Retailer.....	28
Seasonable Advertising for Plumbers.....	29-30
Many Heating Problems Discussed.....	31
Sanitary Inspectors More Important than Doctors.....	31
Plumbing and Drainage Inspectors May Join 'Sanitary Inspectors' Association.....	35
Place of Sanitary Inspectors in Health Campaigns—Ontario Sanitary Appropriation Increased.....	36
Duties of Rural Sanitary Inspectors—Heat as a Sanitary Measure.....	37
Editorial Comment.....	38
Practical Sheet Metal Work (Pattern for Furnace Boot).....	39
Plumbers Participate in "Gala Week".....	40
Sewage Disposal for Small Communities.....	41
News from Here and There.....	42-43-44
Market Conditions and Tendencies, Montreal, Toronto, Winnipeg.....	45-58

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Specify "Pussyfoot"
To Your Jobber.



SILENT---EFFICIENT---DURABLE

"Aristocrat" Laundry Tubs are "the most perfect tubs on the market." Substantial, durable and good-looking, they appeal at once to those for whom you wish to install them.

We also make Sheet Lead, Solder. Traps and bends "Easy" wiping solder and have everything for the plumber.

The "Pussyfoot" Closet Tank

The Pussyfoot Closet Tank completely fills the need for a quiet operating closet. It stands for quality, silence, durability, service, efficiency and satisfaction.

It operates as quietly as a pussy cat's foot, and, like pussy's foot, it lasts a lifetime.

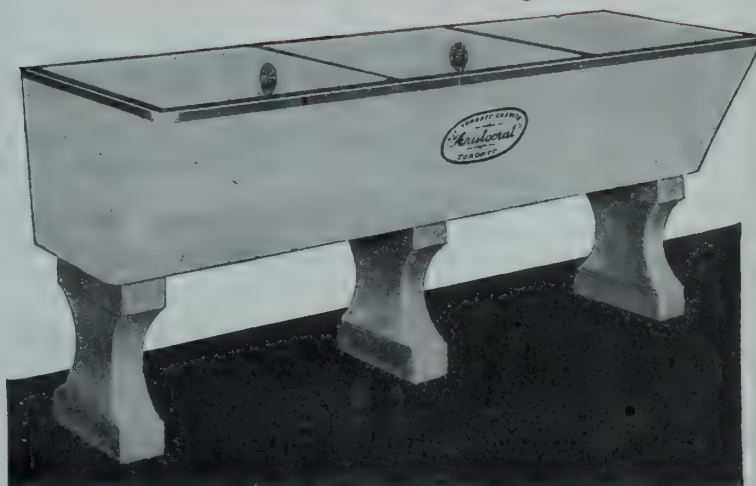
This high quality tank is durable and efficient. Its silent operation and the hard-wearing service it gives, bring satisfaction to both its owner and the plumber who installed it.

The Pussyfoot closet tank is sold on Merit, and will give satisfactory service year after year.

The Pussyfoot typifies the particular tastes of Canadian home-builders, and completely fills the need of a quiet operating closet.

*Every "Pussyfoot" is Right
In Oak, Mahogany or White*

Aristocrat Laundry Tubs



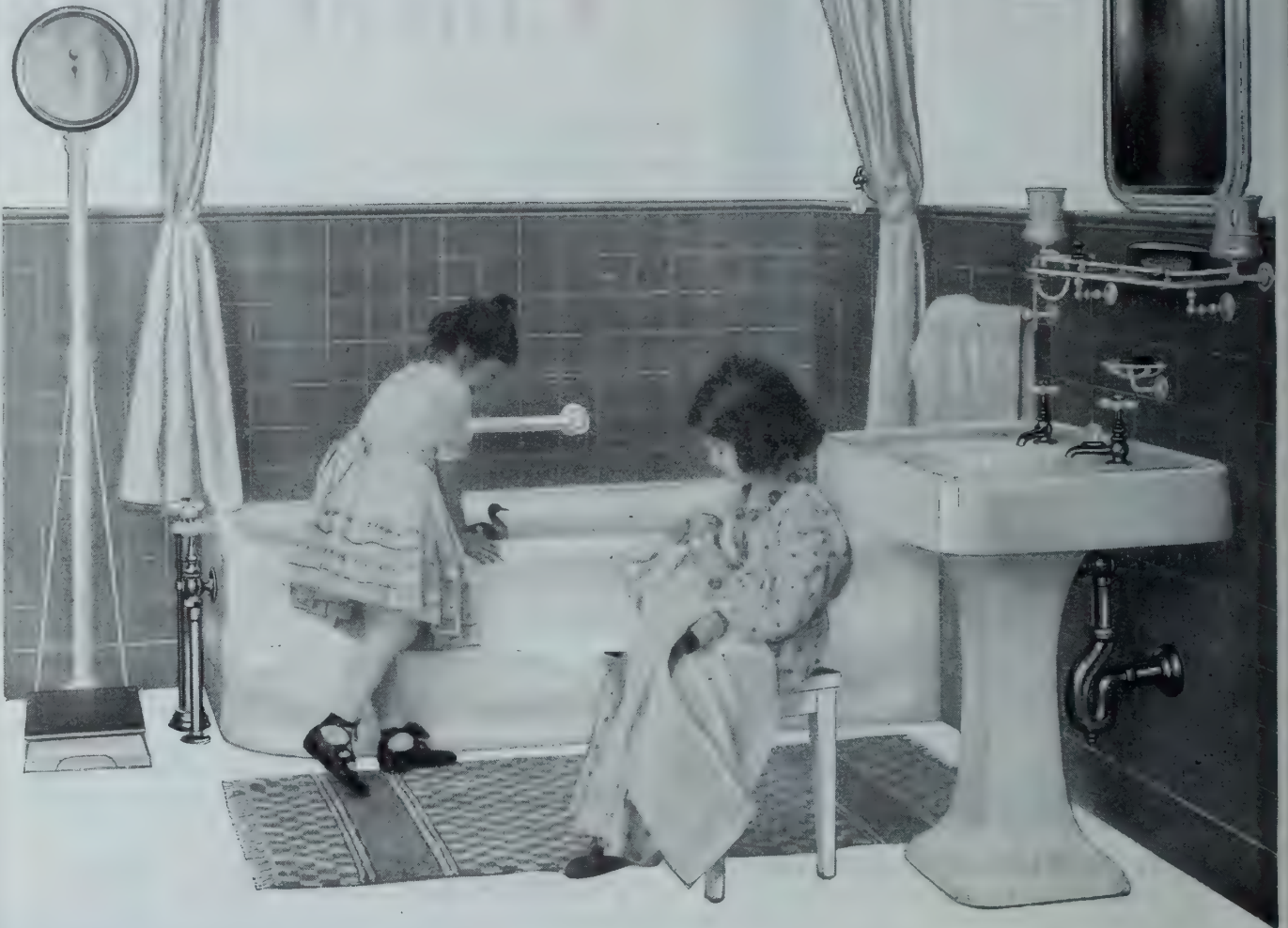
Specify "The Aristocrat"
To Your Jobber

**The Canada Metal Co.,
LIMITED**

**Hamilton, Montreal, TORONTO, Win-
nipeg, Vancouver**

"Standard"

PLUMBING FIXTURES



Guide to The Buyer's Taste

A bathroom expressing such good taste and refinement as that shown above is sure to receive commendation that will increase esteem and respect for your skill and judgment. The buyer will be grateful for your advice and assistance and those who see the installation will come to you for business.

Standard Sanitary Mfg. Co. Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Calgary:
325 Eighth Avenue West

Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.

Vancouver:
860 Cambie Street

"Made In Canada"

Established
1907

Circulates
Throughout
Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

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TORONTO, SEPTEMBER 15, 1921

No. 18

The Plumbing Trade Outlook

Emphasis Laid Upon Quality in Plumbing Installations
—Value of Suggestions in Increasing Sale of Plumbing
and Heating Equipment Illustrated—Many Good Op-
portunities Presented for Developing New Trade.

DISCUSSING the outlook in the plumbing and heating trades with a number of manufacturers, jobbers, etc., Sanitary Engineer has secured some data which will undoubtedly be helpful to operators engaged in this industry.

A thought emphasized by Wm. G. Harris, Jr., Vice-President, The Canada Metal Co., Ltd., Toronto, is that in the present business situation the word "Quality" cannot be emphasized too strongly.

"Of late, by being in personal contact with Plumbers, it appears that there is a class which is making it very hard for some members of the trade in good standing," continued Mr. Harris. "The very name 'Sanitary Engineer' carries with it a meaning that cannot be expressed in few words. When we consult a Sanitary Engineer, we consult him with the idea of, first, having a sanitary job; second, of having it a good engineering job; and, unfortunately, in some districts to-day we are finding men who are inclined to install plumbing material that is put in with the idea of cheapness instead of lasting qualities. Therefore, in keeping with the high name of the trade, high quality goods should be the key note of selling. Let the cheap thrown-together stuff stay where it was made. It is not necessarily the highest priced material that would be the best, but there is always a medium in which you can get lasting quality at fair price, and as a manufacturer, feel that though at times you and we lose business through a price, in the end feel that the man installing the lower grade material is doing himself the greater injury.

Courtesy and Service

"So let the Big Thought "QUALITY" for the Plumbing be not only for to-day's business, but for the good name of the business in the future. We are all aware that our business cannot be built solidly unless capital, coupled with courtesy and service goes out with each sale made, therefore, for the Sanitary Engineers of good standing it would be advisable not to let price over-ride QUALITY, but insist on their customers installing high grade materials. The Cheap John's day comes and goes very rapidly, you can count them, but go back and see the firms of long and old standing and you will see that quality has put them where they are.

Talk "QUALITY" and SELL GOODS.

Need to Hustle

"Rosy, optimistic analysis of business conditions is what we all like to hear. We hardly ever want to know the worst," said A. J. Dickey, Vice-President and General Manager C. Dunham Co., Toronto, recently. "Business assumed a temporary improvement in the Heating Trade, we believe, but we fear that it will be only temporary, except in the case

of the Contractor who is hustling and has a staff of workers with him that help him whole-heartedly to secure the work.

"This co-operation on the part of the helpers may mean longer hours of work, more painstaking work, less pay per month, or per hour, but it is the only way that healthy conditions can be established that will support good healthy business some time in the future."

Gradual Improvement

"We are pleased to be able to tell you that we have found business gradually picking up, dating from the first of the year," said G. A. Walker, H. Mueller Mfg. Co. Ltd., Sarnia, Ont.

"It is our idea that in the past few months many people who had building in mind have reached in a large number of cases the conclusion that building materials are not due for much of a drop. This conclusion is shown by the fact that prior to two or three months ago a considerable number of houses which were to have been built in the summer were held up. Now, however, this does not seem to be the case and building operations are getting well along.

"Contracts are being quite freely let and we look for better business in the plumbing line than has been enjoyed heretofore in 1921.

Suggestion Sales

"We have started a small campaign of propaganda about 'Suggestion Sales' which ideas might prove of considerable benefit if we could make the plumber realize that following out this method he could readily produce more business. We mean by this, when a plumber has the job for installing plumbing in a certain house, he can by suggesting to the owner, have two or three sill cocks placed on various sides of the house to eliminate the necessity for long rolls of rubber hose. The plumber could sell Laundry Tubs if he would take the trouble to talk to the woman of the house. A Shower Bath giving a nice margin of profit, would be ordered in many cases if brought to the attention of the owner and its advantages outlined.

"Many retail salesmen figure that more than half of their sales are what might be called "Suggestion Sales." This course of action could also be followed by the plumber with excellent results.

"One of the letters by this firm dealing with Suggestion Sales is as follows:—

"Most of our friends in the plumbing business whom we have interviewed, candidly admit that they have not given the sales end of their business much thought, but have devoted almost their entire time to the mechanical part and to the figuring of jobs, etc. This leads us to suggest to you the possibility of a very material increase in your business

through an effort on your part to sell plumbing fixtures which are not usually installed, to your customer. For illustration—induce him to install sill cocks on each side of the house, for sprinkling, etc., instead of buying so much rubber hose. Of course, if you sell hose, you won't see the advantage in this, but if you don't, you will of course be interested in getting the customer to buy what you do sell and install.

"I wonder if you realize that half the sales made in stores are what are termed 'Suggestion Sales.' We know from experience that this same thing can be done in the plumbing business and furthermore the class of goods that you will sell by suggestion usually gives you a greater profit than ordinary goods will. In other words, there is a rich field for the sale of Specialties in the plumbing business.

"You will be able to sell Shower Baths, in many homes where they were not originally planned, and every time you do this you will win the good will of your customer, for there is really nothing more appreciated in a home than a Shower Bath. It saves a great deal of time, is very invigorating and more sanitary by far than a tub. It is enjoyed equally by men, women and children. A Shower can be easily installed directly over the ordinary bath tub, but of course a Shower-Stall is preferable and requires very little additional space in the bath room.

"Many men who enjoy Shower Baths in Golf Clubs, Gymnasiums, Y.M.C.A.'s would undoubtedly have one installed in their home if they knew how easily it could be put in and how moderate the price is. A word to any man who is building a home will bring an order, in four cases out of five.

"One plumber that we knew of was anxious to see how much extra goods he could sell that were not really asked for. He suggested a few specialties on each job as he went along and the extra profit from these goods on which there is a large gain, netted him a sum of money in a few years sufficient to put him on Easy street. After all, that's what each one of us is looking forward to and when we apply little ideas that help us along, the extra dollars that come rolling in as a result will sure encourage us to get our share of "Suggestion Sales."

Evidence of considerable deflation in galvanized sheets in the past year, is given in the following statement made by A. T. Enlow, President Dominion Sheet Metal Corporation Ltd., Hamilton, Ont.:-

"Ordinarily the present decline in iron would have reached its minimum and a buying movement would already have occurred, but apparently in this instance such is not the case. Necessity apparently knows no law and any prediction as to what iron and steel products might do within the next three to six months, would have to be based on the extent of some seller's necessity, or the height of his folly.

Big Deflation in Galvanized Sheets

"We do know however, that to-day Galvanized Sheets are selling wholesale at just half the price ruling one year ago, which certainly is more than a moderate amount of deflation and should stimulate the use of Galvanized Sheets very considerably.

"We have all along recommended that the jobbing trade depends to a very considerable extent on manufacturers' stock, whether it be galvanized sheets or other articles, but this does not absolve the jobber from carrying a moderate amount sufficient to do spot business, and we believe the same holds good for the immediate future.

"Labor, which in the end is the biggest component of all products, has not yet taken its full portion of deflation through reduced wages, but rather through reduced work, and when the situation changes and the reverse is true, then conditions in manufacturing and general trade activities will certainly improve.

"It is just as true a maxim to-day that the business man who does not deflate, gets no business, as the proven fact that the workman who asks for old-time high wages, gets no work, hence the importance of everyone coming to a lower basis as rapidly as possible."

A manufacturer of enamel-ware, stoves, etc., states that manufacturers in this line feel they have done their full share to anticipate reduction of prices, in order to overcome this cause of the consumer deferring purchasing, and they feel the bottom has been reached. It is stated that these manufacturers feel they can confidently make an investment in the knowledge that no further reduction is likely to take place this year. Stocks in the hands of retailers are said to be light, which condition is expected to continue until purchasers become more confident.

Ingot and Sheet Metals

Stating that ingot metals have reached a state of equilibrium, G. T. Pepall, M. & L. Samuel, Benjamin & Co., Toronto, points out some interesting facts concerning ingot and sheet metals. "We believe that Ingot metals have reached a state of equilibrium and do not anticipate any further radical decline in prices," said Mr. Pepall. "In regard to Sheet Metals, it is quite possible that the same conditions apply. At the present time the real citizen is the one who saves money, and in the case of the retailer, wholesaler and manufacturer, here again business will be on a sound basis when all of these classes achieve and maintain liquid assets."

"The financial situation is complicated, and bids fair to remain complicated for some time to come, so that it behooves every one to strive to strengthen his own position."

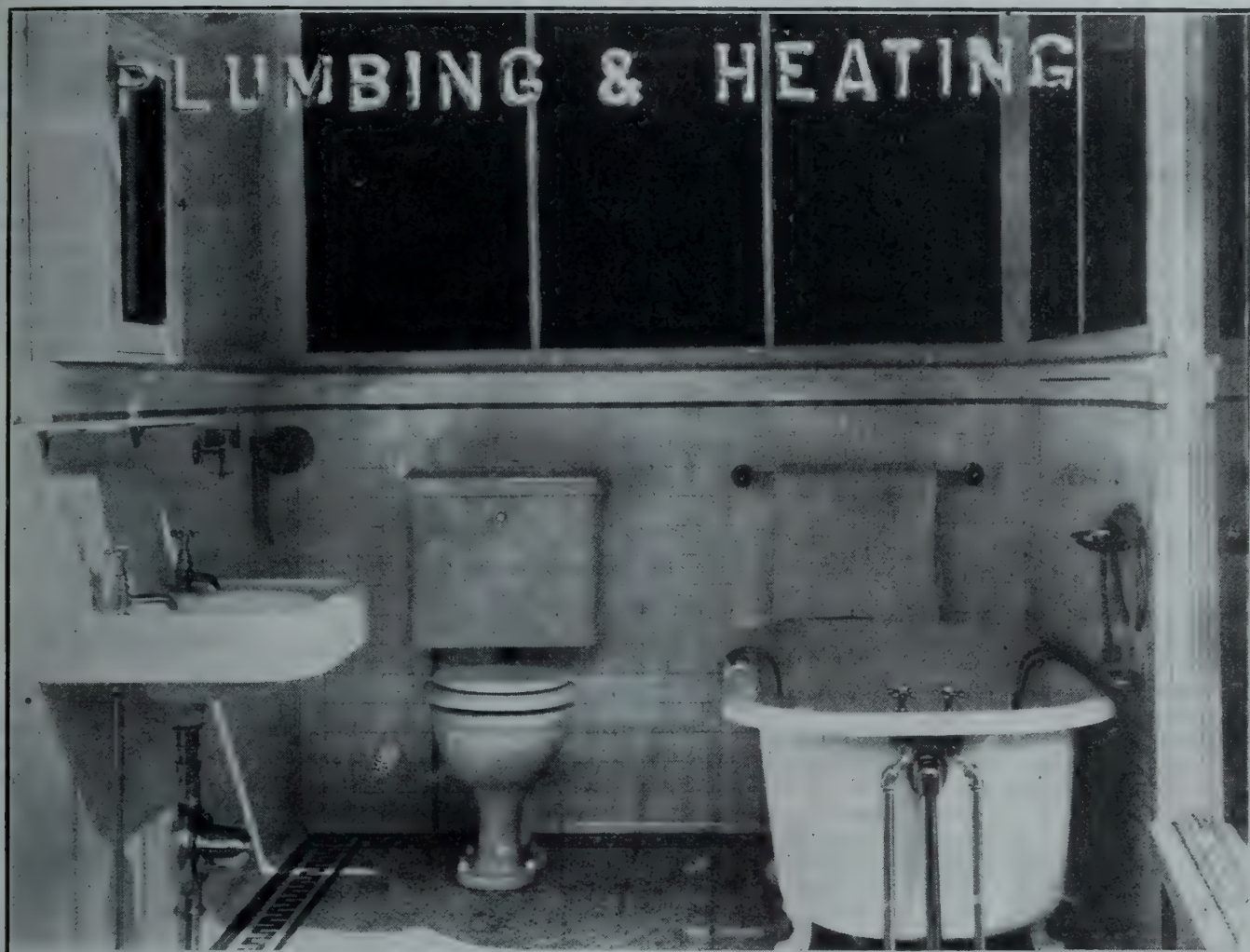
Publishing Under Strike Conditions

Since the issue of June 15, Sanitary Engineer has been published under strike conditions. The printers and allied trades demanded a decrease of 4 hours working time per week and an increase of 15 per cent. in wages. Such demands are obviously ridiculous under present circumstances, and upon the publishers failing to comply with such requirements the printers were ordered by the headquarters of the International Typographical Union in Indianapolis, Indiana, U.S.A., to go on strike, and so the strike is on.

Under such circumstances Sanitary Engineer is doing its utmost to provide its readers with as complete a service as possible. The regular features including news, trade suggestions, market reports, etc., are being continued as usual.

Tiled Display Brings Good Results

Initial Outlay Involves a Goodly Sum, But Owner is Confident it Will Pay for Itself in Twelve Months. Can be Converted Into a Kitchen or Laundry Room, Displaying Wares Applicable to Each.



An outlay of \$500 was necessary in order to give this permanent window arrangement the effect shown, but it has proved a big business puller for F. J. Hogan, plumber and tinsmith, Montreal, as outlined in the accompanying article. The floor and the wall for four feet from the floor are both tiled and the balance of the walls and ceiling finished in a glossy white. The fixtures and accessories were installed as carefully as they would be on a permanent job. The setting can frequently be changed to show a kitchen, laundry, etc.

AN outlay of between four and five hundred dollars seems a considerable sum for a window display, but according to F. J. Hogan, 280 Centre Street, Montreal, it will pay for itself inside of twelve months in his locality.

Mr. Hogan has an active plumbing and tinsmith establishment in his business and one of his display windows is constantly devoted to plumbing wares. Considering the plumbing contract work a very important end of his business, and firmly believing that by further advertising he could develop a much more extensive trade, a neat,

clean and attractive window display is used to assist along these lines. Showing a bathroom, complete in every detail is the idea. With this plan in mind a commencement was made by having a tile floor covering the floor of the window on a level with the inside store. By closing in the window by a wooden partition the walls were formed, the inside of which were tiled up about four feet all around, the rest of the way to the ceiling being finished in a high gloss white enamel. The ceiling underwent the same coatings, thus a pure white appearance was gained from top to bottom. The installing of bath

tub, basin and closet was undertaken with as much care and precision as would have been the case in a private home, each placed in a most convenient position with taps, bibbs and traps perfectly placed.

Illuminated at Night.

The smaller fixtures, including the medicine chest, glass towel roller, glass tray, tumbler holder and toilet paper holder were screw nailed to their proper place, and to complete the arrangement the display is illuminated at night by a dome fixture at the ceiling, and a side wall fixture, common to most bathrooms.

"The initial outlay involved approximately \$500.00," said Mr. Hogan to SANITARY ENGINEER, "but I firmly believe that in twelve months it will have paid for itself. Passers-by have found it an attractive showing of our wares and I am safe in saying we have made sales we would not have otherwise have obtained."

Converted Into Kitchen or Laundry Room.

"The tiling forms a permanent background for displays of all enamelled ware, and we are now contemplating a change. By removing the fixtures now on display and placing a combination sink and laundry tub, gas stove, refrigerator, etc., we can convert it into a complete kitchen arrangement, thus offering a display of our enamelled ware, aluminum ware and other kitchen utensils," continued Mr. Hogan.

By again changing the fixtures to laundry tubs, washing machine, wringer and clothes basket, the laundry room

is shown, each display featuring many lines from the stock.

"I have been in business fourteen years and have found that unless we are willing to lay out a reasonable sum for advertising, and proper displays, we cannot hope to get bigger results. Goods must be displayed, more so today than ever before if we want larger sales," he said.

Hardware and Plumbing Dovetails.

Mr. Hogan has found that a hardware stock and plumbing shop work well together. Being in a locality where a large factory trade is to be had, the outside plumbing work in the factories enables them to get in touch with a good many of the employees. This is assisted by the repair man in the shop who mends the pots, pans and utensils for the households of these men. While repair work of this nature very often brings little or no profit, it brings the housewife to the store and this is half the battle.

Plans to Extend.

Work will be commenced this year on an extension to the workshop. While present premises permit of a good sized work bench and space for tin shop tools, Mr. Hogan believes a spacious shop is necessary for the men to work with results. This will also furnish more storage for the products they make. For example, five thousand stove pipes are usually sold by this store in the Fall. At present these are rolled in bundles, but if storage permitted they could be completed and ready for sale. This could be done in the summer months, when the workmen have an hour or so of a slack period.

One thing that has always been told the workmen in this store is a saying that when carried out has undoubtedly helped to obtain the standing that is now enjoyed. It is this: "You do the work and I will do the collecting, but if it is a poor job I cannot collect."

The Average Tinsmith is a Retailer

Definite ruling at last forthcoming from Ottawa settling controversial point—
Tinsmith who makes articles for special order and not for re-sale is a retailer
—Sales tax applies only to goods manufactured for re-sale.

THE continued protests which have been made in regard to the classing of tinsmiths in the category of manufacturers for purposes of taxation, have at last brought some results in the form of a definite ruling given by the Deputy Minister of Customs to local Collectors throughout the country, which clearly sets forth that the product of the tin-shop which is made for special order for customers and not for re-sale, cannot be subject to sales tax and the tinsmith ordered to take out a manufacturer's license.

The course of the proceedings have been outlined fully in past issues of Sanitary Engineer, showing how officials at Ottawa refused to give any definite ruling and how local Collectors were apparently left to give their own interpretation. This naturally resulted in much confusion because certain Collectors held that tinsmiths were not so liable, while others held that tinsmiths were manufacturers, and threatened to prosecute.

Becoming Increasingly Difficult

Owing to the fact that two test cases had been won in the courts in favor of the retailers, the tinsmiths were advised by Sanitary Engineer, and the Retail Merchants' Association, to pay no attention to the rulings of local Collectors to the effect that they were classed as manufacturers. While this attitude was taken by many merchants, yet it was becoming increasingly difficult for some of them to hold out without prosecution by local Collectors, which would have entailed the paying of court costs for defending the case. Therefore the ruling now forthcoming from Ottawa comes at a time when it will definitely settle in the minds of tinsmiths and Collectors just what their responsibility is.

It is evident from the nature of the ruling that the Department was unable to make a definite application of any one rule to all tinsmiths and sheet metal workers, due to the fact that some undoubtedly manufacture certain articles for re-sale. Therefore the present ruling which differentiates as to the tax, on the basis of whether the article is made

for re-sale or for special order work for consumers, is a fair way of overcoming the difficulty.

The statement of the Deputy Minister of Customs and Inland Revenue provides that traders dealing both wholesale and retail can keep separate accounts so that their business can come under different categories of the sales tax involving different rates of taxation. It points out that "in the case of a firm selling exclusively by retail and making goods to the order of a customer exclusively, the sales tax is not applicable."

"If a firm is selling exclusively by retail and manufactures goods to the order of each individual customer and also manufactures goods for stock, it is held that the sales tax is applicable in respect of goods manufactured for stock only.

Where Sales Tax Applies

"If a firm is selling partially by retail but doing a business also with the trade, the sales tax is applicable in respect of their entire business, providing however that the accounts of the wholesale or manufacturing branch may be segregated from the retail branch.


"The department will hold retailers responsible for the payment of the sales tax under the conditions above defined as respects all sales on and after May 10, 1921."

It is evident from the above ruling that the difficulty is being overcome by allowing separate books to be kept covering articles manufactured for re-sale and articles made up on special order for customers, and sales tax, is collected only on the former. To the hardware merchants and tinsmiths who have postponed taking out manufacturers' licenses they will now know where they stand, and those who hold such licenses can probably be released from any further responsibility by following the advice formerly given, and write the word "Abandoned" across the papers and return them to the Collector.

Seasonable Advertising For Plumbers

PLUMBING

Get the Furnace Ready Now



Get your furnace ready by having the pipes repaired and put in place the delivery adjusted. The furnace is perhaps the most important part of the house and should be kept in perfect working order for the next cold season. We can service up your system.

Mc KINNON

Heating and Plumbing
Phone 36

122 Victoria St.
P O Box 185

SANITARY PLUMBING

Plumbers sell sanitation. Homes have sanitation or they do not---there is no half-way mark---and civilization cannot progress rapidly unless there is complete sanitation in every household. Thousands of homes are now healthy, happy, and livable thru the promotion of sanitation by good plumbing.

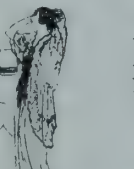
Yet there are abundant opportunities where Sanitary Equipment is badly needed. Our business is to fill that need. A word from you and we will be ready to serve you.

Port Colborne Supply Co.

Limited
H. H. OTT, Manager
Phone 342


PLUMBING

At this time of year, when the weather is so uncertain, it is a good idea to have your plumbing system checked over by a professional plumber. This will ensure that your system is in good working order and that you will not have any trouble when the weather turns cold. A professional plumber will also be able to advise you on the best way to winterize your system.



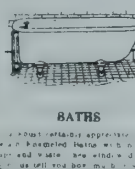
PEDESTAL BASINS

A beautiful, modern pedestal basin with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.



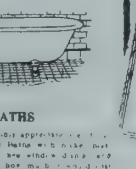
BATHS

A beautiful, modern bathtub with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.




CLOSETS

A beautiful, modern closet with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.



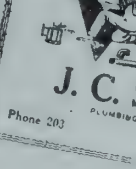
BATHROOM FIXTURES

A beautiful, modern bathroom fixture with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.




INLAIN LINOLEUMS

A beautiful, modern inlaid linoleum with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.



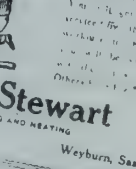
SINKS

A beautiful, modern sink with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.



ELECTRIC WATER HEATER

A beautiful, modern electric water heater with a white enamel finish. It is made of heavy porcelain and is very durable. It is also very easy to clean and is a great addition to any bathroom.



INGRAM & DAVEY

Plumbing and Heating
Phone 1234

J. C. Stewart

PLUMBING AND HEATING
Phone 203
Weyburn, Sask.

WHAT TO DO when you have a problem with your furnace. You can call J. C. Stewart, a professional plumber and heating expert, who will be able to advise you on the best way to solve your problem. He will also be able to service your furnace and make any necessary repairs.

Now is the Time To Get Your Furnace

and when you buy one get a good one

The Empire King

has been on the market for 20 years and always given satisfaction. You'll get our prices right, our service the best, and everything to your liking. Let us give you an estimate on your new furnace.

We are experts on all Furnace Work, Repairs, Plumbing, etc.

Herbert Kiem

Plumbing and Tinsmithing
87 King St. East
Phone 375W

SOME samples of recent local advertising done by plumbing and heating engineers in various parts of Canada, are shown herewith as samples of copy which may prove helpful to others who are framing their advertising copy for Fall requirements. Many lines lend themselves admirably to advertising treatment during the Fall and Winter months and with the use of some illustrations and preferably working in reference to some local current happenings, some effective copy can be arranged.

The ad illustrated, as used by McKinnon, Kamloops, B.C., is headed "Get the Furnace Ready Now" and an illustration is used showing a tinsmith at work. It continues "For next winter's needs, by having the pipes repaired and put in shape, the damper adjusted and perhaps renewed, the body of the furnace patched or otherwise cared for. Our tinning and sheet metal work insures you a perfect working furnace for the next cold spell. We specialize on heating systems."

Sanitary Plumbing.

Emphasizing the importance of sanitary plumbing and helping to drive home one of the most important arguments which the plumber has at his disposal, the ad by Port Colborne Supply Co., Port Colborne, Ont., under the above heading states: "Plumbers sell sanitation. Homes have sanitation or they do not—there is no half-way mark—and civilization cannot progress rapidly unless there is complete sanitation in every household. Thousands of homes are now healthy, happy and livable through the promotion of sani-

tation by good plumbing. Yet there are abundant opportunities where sanitary equipment is badly needed. Our business is to fill that need. A word from you and we will be ready to serve you."

Importance of Good Plumbing.

Further dealing with the importance of good plumbing in the home the ad by Ingram & Davey Ltd., St. Thomas, Ont., states: "Good plumbing is one of the most important features about a house and should receive careful attention at the hands of the owner at the time the architect is making the plans or in an old house you have purchased. It does not pay to install cheap plumbing because there is no one feature in the construction of a house that will be as unsatisfactory—both as to the fixtures and the workmanship. On the other hand, there is nothing which will appeal so strongly to the fastidious and careful housewife and be so great a source of enjoyment as modern high grade plumbing that we can offer you. Our fixtures and workmanship are guaranteed. Let us give you an estimate on your plumbing today."

Continuing by giving an underline concerning the various fixtures illustrated, this ad in dealing with pedestal basins says: "A beautiful porcelain enamelled pedestal basin with slab, oval bowl with rear outlet and apron all in one piece on porcelain enamelled pedestal, nickel plated water fittings with china handles and indexes and china indexed knob on waste would do wonders in fixing up your bathroom or installing in your new home. In window display, and come

in and ask us all about our model bathroom.

Electric Water Heater.

Dealing with an electric water heater the ad stated: "Just think what a convenience of only turning a button in the morning ad in a few minutes have enough hot water for a shave and a bath. Come in and let us tell you all about this water heater." Dealing with baths the ad says: "See window display and then let us tell you how much it would cost to have a bathroom like it in your home." Closets, bathroom fixtures, sink and drain boards, linoleums, sinks, basins, etc., are all dealt with and illustrated.

This firm has found that linking up their advertising effort with the window displays on the same line has brought considerable business and many promising enquiries. It is merely another proof of the value of concerted effort and bringing the most influence to bear at the right point.

A brief ad by J. C. Stewart, Weyburn, Sask., shows an illustration of a plumber at work and states: "What to do, when you have trouble with your plumbing. Just telephone—You will get prompt service by the best workmen in the city. You will be satisfied with the way we work. Others have been."

An illustrated ad dealing with a furnace is used by Herbert Klem, Kitchener, Ont., headed: "Now is the time to get your furnace," continuing, "and when you buy one get a good one." The features of the particular furnace handled are then outlined, the ad closing with an invitation to allow the firm to give an estimate on any work required.

Some Helpful Pointers.

Some pointers for writing effective Fall advertising copy are given as follows:

The first essential of a good advertisement is that it should attract favorable attention. To win the attention of your readers is, of course, necessary.

To win attention your advertisement must be so placed that it will come within easy reach of the greatest possible number of the class of people you are appealing to. But it is not enough to win attention, it must be favorable attention. Circus tactics will quickly collect a crowd, but won't sell goods to people you want to reach permanently.

In this connection that class of advertising is to be condemned which attracts attention through misleading headlines.

Having established the general principle of the need of attracting favorable attention, let us come down to the concrete question of ways and means. Suppose you want to put a small advertisement in a crowded newspaper page. How can you make it stand out?

Making the Ad Prominent.

First of all, study the appearance of the page on which it is likely to appear. Have the advertisements a crowded appearance? Are they jammed to the borders with type? Then, to quote an eighteenth century dramatist who must have known something about advertising, let "a neat rivulet of type meander through a wide meadow of margin." Make your message brief, set it in the centre of your space, and ask the printer to leave lots of white (blank space) around it. Your advertisement will then stand out, through the principle of contrast.

Borders, display type, (head line type), and illustrations play a large part in winning favorable attention. Very ornamental borders distract attention from the inside of the advertisement, though they can often be used to advantage when in keeping with their subject, the advertising of say jewelry, lace or flowers.

Heavy, black borders should also be used with care. A safe rule to follow in using heavy borders is to have ample white space inside them and around your message.

A great many effects can be obtained by combining borders in various ways. Every composing room has plain rule borders varying in width from 1-72 to 12-72 of an inch, and accordingly named one point, two point, four point, six point and twelve point rules. The 12 pt. rule would have a very heavy, bold appearance, and 1 pt. would be about as the rule that separates columns of reading matter.

By using a 2 pt. rule inside of a six pt. rule you get one of the best all-purpose borders possible. And many ornamental borders are strengthened by putting a light face rule inside them.

Even a single rule can be used in various ways to win attention. One of the best of these variations is to have the six point rule at the top and bottom cross the ones at the sides about one third of an inch below the corners, instead of touching their ends. This has the effect of throwing white space out around the advertisement in a very effective way.

Display type is another important element in winning attention. The head line of the advertisement, which is always set in display type, is perhaps the most vital part of your advertisement—it is the door to your store and can be made to repel or attract visitors.

If your head line is set in capital letters, or in certain kinds of Italic type, it will not be as readable as it should be in every case. Better put it in small and large letters.

A Common Error.

But the most serious mistake most merchants make in their advertising, at least in this department, is to have their space plastered with their name to such an extent that nothing else is noticeable. Now honestly, you must admit that people are not very much interested in your store as a store. What they are interested in is what you have to sell. And if they can't hear that because you are shouting your name at them, small wonder if you sell your name and lose it, while you still keep your goods.

It is a pretty safe practice to keep your name till the end of the advertisement, and then to have it set in type that will be half as strong in its effect as the type used in your headline.

"A picture is worth a thousand words—if the picture is right," said Arthur Brisbane. Illustrations nearly always improve the attention-winning possibilities of an advertisement and more merchants should use them. Whenever you place an order for goods that you intend to advertise later, ask the manufacturer if he can supply you with newspaper cuts. Many of them have them in stock for this purpose, others will be glad to have them made for you.

The shape of an advertisement also plays a part in helping to win or lose attention. There is an excellent rule to follow in this connection, if you remember that it is not only for the average case and admits of exceptions.

This rule is best expressed arithmetically. Taking the number of columns wide your advertisement is for the numerator, and its depth for the denominator, the fraction should work itself out to about one third. Applying the rule, if your advertisement is three columns wide, it should be about nine inches deep, because three over nine reduces to one third. Careful observation has shown that an advertisement of this shape generally is the most prominent. Where, however, the space used is only six inches in all, it seems to have a better chance to be read if put in single column form.

Heating and Ventilating

Many Heating Problems Discussed

Address to Warm Air Furnace and Supply Association Deals With Heating Problems From Some Interesting Angles—High Cost of Fuel Has Created More Interest in Equipment—Many Chimneys Defective—Other Faults in Construction.

H EATING the home is a subject of which the public knows very little. The entire heating fraternity is deserving of some censure for its lack of interest in placing before the public essential information pertaining to heating, although in a measure it cannot be too severely criticized, for in the past the public in general has cared very little what it cost to heat the home provided it could keep fairly comfortable on any fuel consumption during severe cold or blizzards," said a recent speaker addressing a convention of warm air furnace and supply men.

"A ton or two more or less of coal was of little consequence. But there is a difference to-day and if coal prices remain high for a few years, we will find a greater interest shown in reducing the cost of heating, and a demand for more uniform temperature as well.

Difference Between a Home and a House

"There is a considerable difference between a home and a house. Ever think of that?

"A house is a structure having four or more outside walls and erected at the lowest possible cost without consideration for durability or comfort, much less permanency, and often dolled up to appear a thing of beauty, while an 'honest-to-goodness' home is not only substantially and carefully erected, but every detail for comfort, economy and durability is given careful consideration. Too often the heating is reserved for consideration until after everything else has been provided for. The best investment a home builder can make is to employ the highest class architect procurable.

Where Installers Err.

"The greatest number of buildings erected to-day are houses, not homes. This statement is particularly true where large housing projects are concerned. I doubt very much if 10 per cent of all of the residence buildings erected to-day can be called homes, for in the majority of cases dollars and cents is the first consideration. Whether it be walls, floors, chimneys, metal work, plumbing or heating, not one extra sack of cement or even one extra brick is allowed.

"By these statements I do not wish to seem to advocate waste, but I can show you rows of houses where the heating contractor had to add metal extensions to the chimneys (a most in-artistic sight) in order to produce draft before he could get settlement on the jobs, and all because the brick contractors did not extend the chimneys above the ridge of the roofs. He, however, claims that he extended the flues to the height shown on the building plans. The furnace installers erred in not checking the flues before connecting the heaters, and demanding suitable ones.

Malpractice in Residence Construction.

"I often feel like getting a soap-box and standing on the street corners and warning the public against the malpractice of residence construction in particular, although much can be said about other structures, such as schools, churches, etc.

"Often a contract is let for the erection of 50 or 60 houses and regardless of how they are located or in which direction they face, the heating installation in each case is identical, and I am sure you will agree with me that a difference in installation should exist, everyone knowing full well that the sides having greatest exposure should be protected to the greatest possible extent.

Obstacles to Economic Heating.

"Some of the outstanding obstacles to economic and comfortable heating are character of construction, chimneys, restrictions regarding heating installations caused by ignorance on the part of the designer or owner. One startling fact is that 60 per cent of all buildings leak like sieves, making the heating problem exceedingly difficult.

"This statement can be verified beyond any doubt. Leaks everywhere from basement to attic, requiring in many cases two to three times as much fuel as a well-constructed properly tight building of the same size, account for one building requiring much more heat than another of similar construction. The excess fuel consumption represents a great waste and a financial loss. I call these structures cyclone

buildings, for I believe it is possible to fly a kite in some of them.

Unsatisfactory Building Design.

"One of our eminent heating engineers, and in fact, a professor in one of our colleges, stated a few years ago that he was satisfied that 75 per cent of the residences in the country costing \$5,000 or less, are unsatisfactorily heated, and that the failures are not so much from lack of ability on the part of the heating contractor as on account of unsatisfactory building design and construction.

"Many houses are in a great measure individually constructed and naturally receive better attention, but with all things considered, much improvement from a heating standpoint can be made on the majority of the structures, namely, the stoppage of all air currents or counter currents between joists and studdings. The space above upper ceilings and in attics where air leakages are a tremendous drain on heating systems.

Air Leakages Around Doors and Windows.

"Leakages around doors and windows are also a factor of loss that is beyond comprehension to the average layman and air leakages around basement windows and sills deserve special attention as well.

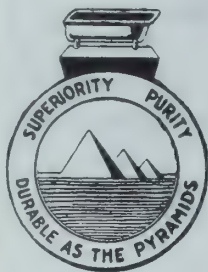
"The construction of the building walls has had little consideration in the past from a heating standpoint and in cases of unsatisfactory heating, the heater and system have been condemned, when as a matter of fact, an apparatus two sizes larger would not have produced the desired results due to lack of proper design.

Fifty Per Cent of Chimneys Are Defective.

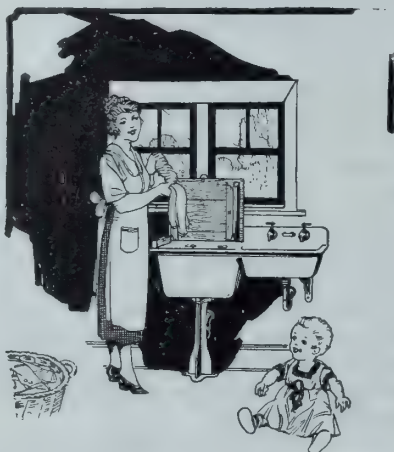
"These facts, coupled with the thousands of poorly constructed and improperly designed chimneys, make the satisfactory heating of the home a problem well worth careful attention, both on the part of the contractor and the owner.

"Just imagine what condition chimneys are in when it has been proved be-

(Continued on Page 60.)



The Real Profit That



PORT HOPE

Sweetness and Health

Ensure both by seeing to it that your home is properly supplied with the most approved types of washing, lavatory and other sanitary fixtures.

We recommend and install the famous "Port Hope" line—Made in Canada.

With us plumbing is not so much a trade as a science.

Your Name and Address Here

1 column x 75 lines

The real profit to the modern Sanitary Engineer comes not only from the sale of fixtures, but from the additional work that follows such installations.

A modern bathroom, including toilet, bathtub, shower, lavatory, slop-sinks, etc., provides a valuable series of secondary work involving both labor and material. Beauty of appearance leads to the sale of plumbing enamelware.

OUR FREE ADVER-

The Port Hope Sanitary Maintains a free advertising service—the appeal of appearance to with ease and economy.

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

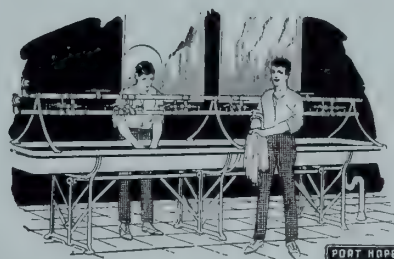
Winnipeg Office:
405 TRIBUNE BLDG.

Follows Installations



People are really first attracted by the beauty of Port Hope Enamelware. They are finally convinced by its efficient design, excellent workmanship, and fine finish.

You can benefit by this attraction through handsome displays of Port Hope Enamelware in your windows—handsome convincing displays. Your local newspaper advertising, also, carries the appeal of beautiful enamelware to your prospect.



Refreshing!

Yes. 'They'll Say So

To wash in porcelain enameled wash-sinks as clean as the water that runs into them has a tonic effect on the mind of workers whose self-respect is thoughtfully considered by their employers.

We are well equipped to carry out all kinds of plumbing work according to the most approved recommendations of the Health Authorities—in the home as well as in the factory. Let us give you an estimate on any changes you might like to effect.

Your Name and Address Here

1 column x 70 lines

TISING SERVICE

ufacturing Company main.
vice that enables you to put
work for you in your locality

Mfg. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

Sanitary Inspectors More Important Than Doctors

Statement of Mayor of Ottawa at Ninth Annual Convention of Canadian Sanitary Association — Change Name to Sanitary Inspectors' Association of Canada—Winnipeg Next Convention City—G. O. S. Laflamme, Chief Sanitary Inspector of Ottawa, Elected President for 1921-22.

OTTAWA, Ont.:—George O. S. Laflamme, for twenty-one years chief sanitary inspector of Ottawa, was elected president of the Canadian Sanitary Association at the concluding session of the ninth annual convention in Ottawa September 6, 7, and 8. This honor was conferred on Mr. Laflamme in recognition of the splendid efforts he has been making to build up the eastern membership.

Outstanding features of the convention were: 1, the decision to change the name to the Sanitary Inspectors' Association of Canada; 2, the delivery of a number of exceptionally interesting and instructive addresses; 3, a statement by the Mayor of Ottawa that sanitary inspectors who did their work well were worth more to the city than were the doctors; 4, an appeal by the medical health officer of Ottawa for the adoption of more effective disinfection methods; 5, the selection of Winnipeg as the next convention city.

It was a successful conference. Everything went along just like clock work from start to finish and at the end the officers expressed great delight and satisfaction. The weather man was kind, with the result that the visitors, many of whom had never been in the capital before were afforded ample opportunity to get about and see the many beautiful sights that Ottawa is noted for. George Laflamme and a competent committee had the local arrangements in hand, and they saw to it that there was not a dull moment during the three days. On two separate occasions automobile tours were taken around the city, and the entertainment part of the program was suitably capped with a sumptuous banquet in the Russell hotel on Thursday evening.

New Officers.

The officers for the ensuing year are: President, G. O. S. Laflamme, Ottawa; vice presidents: Quebec, Dr. J. A. Beland, of Shawinigan Falls; Ontario, A. J. Bolus, of Fort William; Manitoba, H. G. Trigg, of Winnipeg; Saskatchewan, W. K. F. Durrant, of Moose Jaw; Alberta, J. J. Dunn, of Calgary; British Columbia, H. S. Sturgess, of Vancouver.

Secretary-Treasurer Alex. Officer, of Winnipeg, re-elected.

Executive Council: F. C. Austin, T. J. Booth, A. Barclay and C. Hargrave, all of Winnipeg. The council includes the president and each of the vice presidents.

Auditors: F. Hudson and J. Sheppard, both of Winnipeg.

Hon. Walter Rollo, minister of health in Ontario, was chosen as vice patron, and the following were chosen as honorary members: Dr. McCullough, medical health officer of Ontario; Dr. C. A. Hodgetts, director general St. John Ambulance Association; Dr. T. A. Lomer, medical health officer, Ottawa; Dr. J. A. Amyot, deputy minister of

health of the federal department; Dr. R. H. Parent, M.H.O., of Eastview, Ont. J. S. Nelson, M.H.O. of Westboro, Ont., and Dr. Robert Law, former M.H.O. of Ottawa.

New Members in East.

This was the first convention held in Eastern Canada, but it was not the last. The western members, the majority of them honest Scotsmen, who mean a thing when they say it, stated most emphatically that they liked Ottawa, and better still liked the eastern members and wanted to come back here in the near future. While the bulk of the membership lies in the west, great

Health. These were appropriately replied to by the president who remarked on the cleanliness of Ottawa. He explained that the reasons why there were not many delegates was that quite a few municipalities had not seen fit to grant their sanitary inspectors permission to attend. However, he felt this was a state of affairs that would soon be gotten over, as these municipalities would soon recognize the value of sending their inspectors to a convention where they could acquire knowledge that would be of considerable benefit to the whole people.

Activity in the West.

In his later address to the delegates, the president reviewed the history of the association, and said that while the membership had not shown any increase this year, there was no reason to be discouraged. The organization in the west had been gotten well under way, and he hoped to see a lot of activity in that direction in the east from now on. In this connection, he paid high tribute to Mr. Laflamme of Ottawa, for the work he had been doing in trying to line up the eastern membership. "The bulk of the membership of course is in the west at present," he said, "but there is no reason why the balance should not be on the side of the east before very long, and in that event it would be only the right thing that the headquarters of the association should be in the east, in Toronto, or some other eastern city. We have no desire to hog things in the west."

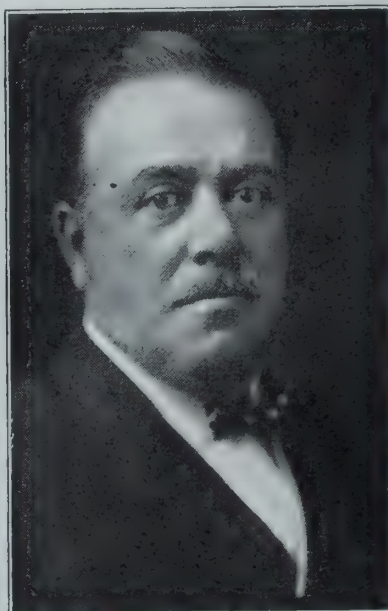
The address included worthy reference to the outstanding qualities of the secretary, Alex. Officer of Winnipeg. "He is a secretary in a million," said the president, "and he has the work of the association so much at heart that he can never stop thinking about it."

The president urged the formation of associations in each province, and branches in each municipality. "There are a lot of things these branches could do for themselves," he said, "in fact as our association grows, this course will be absolutely necessary. At present it is impossible to get all our members together at one convention, and I doubt if we will ever be able to achieve that purpose. Then with regard to the holding of conventions, I think the best plan is to hold them alternately in the east, Central Canada and the West."

In further reference to the formation of local branches, the president cautioned against trying to do too much at the start. He also advised making the meetings the free and easy kind, where no one would feel backward about venturing opinions and making suggestions.

Raising Status of Sanitary Inspectors.

In briefly outlining the benefits of the association, Mr. Brown said one of the principal arguments in favor of



GEORGE O. S. LAFLAMME.
of Ottawa, Ont., elected President of the Sanitary Inspectors' Association of Canada, at the annual convention just concluded at Ottawa.

strides are being made in the direction of securing new members in the east, and it was hinted by the western members themselves that it might not be long before it would be not only wise but necessary to change the headquarters from Winnipeg to Toronto or some other eastern city.

The conference opened at 10 o'clock Tuesday morning in the council chamber of the City Hall, with the president, E. C. Brown, of Winnipeg, in the chair. Addresses of welcome were delivered by Mayor Plant on behalf of the city, William Joynt on behalf of Nepean township, and Dr. D.A. Whitton on behalf of the local Board of



DELEGATES TO 9TH CONVENTION SANITARY INSPECTORS' ASSOCIATION OF CANADA.

Some of the delegates to the convention of this association, just concluded at Ottawa, Ont. The four in the centre of the front row are, from left to right, George O. S. Laflamme, President, Mrs. J. C. Henington, Lady Superintendent Victorian Order of Nurses, Frank H. Plant, Mayor of Ottawa who addressed the gathering, and B. C. Brown, retiring President.

it was that it had been instrumental in raising the status of the sanitary inspector, especially in the west, where he was now looked upon as a real asset to the municipality.

Following the president's remarks, there was a short address by Alex. White of North Bay, senior sanitary inspector of the Ontario Department of Health, who said he was hopeful that the ministry of health would yet arrange for a practical course of hygiene for its inspectors in some university, something similar to the course arranged for public health nurses.

Referring to the efforts of Mr. Laflamme of Ottawa, to build up the eastern membership, the speaker said the sending of letters around the country was all very well, but he thought the further step of going direct to the city councils, should be taken. "We should go right before them and tell them why their inspectors should be members of our association, and attend our conventions," he said. He further stated that while there were at present five provincial sanitary inspectors in Ontario at present, he was willing to bet there would be double that number before very long.

The secretary, Alex. Officer, spoke of the work in the west and said great strides had been made in Alberta and Saskatchewan, but as yet very little organization work had been done in

British Columbia. Personally, he was keen on doing all the public health work he could. He had tried to measure up to a high standard, but had not been successful in accomplishing all he wanted to along that line. Speaking of the status of the sanitary inspector he said: "We in Winnipeg trust our inspectors implicitly. Unfortunately there have been cross roads between health officials and sanitary inspectors, but we who are studying these questions know there are a good many things the sanitary inspector can do that the M.H.O. cannot do. If we can only get the M. H.O.'s in each municipality to realize that we are out to make the department he is head of, a success, then we will be getting somewhere."

At the afternoon session on Tuesday there was an address on "Disinfection" by Dr. T. A. Lomer, medical health officer of Ottawa, and an address on "The Administration of the Meat and Canned Foods Acts," by Dr. Robert Byrne, chief inspector, department of agriculture. Following these, the delegates were taken on a delightful automobile drive around the city.

"The Transmission of Communicable Diseases," was the subject of an address delivered in the evening by Dr. J. A. Amyot, deputy minister of health, in which he advocated bacteriological methods for the control of infection. He emphasized the necessity of sanitary in-

spectors and other health workers preaching the gospel of cleanliness as disease prevention. Flies, he pointed out, were great disease carriers and therefore people should be constantly warned of the danger of allowing them in their houses and other places.

Wednesday's Sessions.

Wednesday was given over mostly to the hearing of addresses and another drive around the city in the afternoon. In the evening there was a banquet in the Russell hotel, a report of which appears elsewhere. Mr. Naulon Cauchon of Ottawa, was down on the program for an address on "Town Planning," but he was obliged to leave the city hurriedly Tuesday morning and therefore could not attend. However, four other interesting and instructive addresses were given, one by Dr. C. A. Hodgetts, Director General of St. John Ambulance Association, on "The Place of a Sanitary Inspector in the Present Health Campaign"; one by Dr. J. S. Nelson, M.H.O. of Westboro, Ont., on "The Duties of a Sanitary Inspector in a Rural District"; one by Dr. R. H. Parent, M.H.O., of Eastview, Ont., on "Tuberculosis," and another by Alex. White, senior sanitary inspector of Ontario, on "The Production of Pure Milk."

To Admit Plumbing Inspectors.

The conference came to an end shortly after noon on Thursday, the

principal business of the final session being the election of officers, and the decision to change the name of the association. This was brought about by the almost unanimous opinion that the former name was too broad. The desire was to keep the membership limited strictly to sanitary inspectors for the time being, and hence the name: The Sanitary Inspectors' Association of Canada. The question was raised by one delegate as to whether it was the intention to admit plumbing inspectors into membership. The president said he understood there was no objection, and other members stated they were quite in favor of having the plumbing in-

spectors in, as their work was of an absolutely sanitary nature.

Before the next meeting place was decided upon, the secretary read a letter from Mayor Parnell of Winnipeg in which he very cordially invited the association to meet there in 1922. "Anything we can do for your association will be done as a pleasure, rather than a duty," the mayor wrote. The decision to meet in Winnipeg was unanimous.

The concluding remarks were made by the secretary, Alex. Officer, who thanked the delegates for his re-election and said: "You could probably get a more able secretary, but I will wager that you could not get a more anxious one."

The delegates were: E.C. Brown, president, Winnipeg; Alex. Officer, secretary, Winnipeg; A. Mitchell, Regina; W. C. Millar, Fort William; Alex. Barclay, Winnipeg; Thomas W. Reid, Regina; W. S. McKee, Sudbury; John Richardson, North Bay; James Taylor, Sault Ste. Marie; Alex. White, North Bay; W. T. Sherriff, Ottawa; A. J. Bolus, Fort William; Dr. J. A. Beland, Shawinigan Falls, Que.; R. Manion, of Eastview, Ont., and the following members of the Ottawa health department sanitary staff: G.O.S. Laflamme, chief inspector and newly elected president, Samuel Fee, Victor G. Joyce, P. G. Stewart, Thomas Keiley and J. Audette.

Plumbing Inspector May Join Sanitary Association

Request Made for Amalgamation With Sanitary Inspectors' Association of Canada.

OTTAWA, Ont.—The annual report of the executive committee of the Sanitary Inspectors' Association of Canada showed that as far as membership was concerned, the association was just about holding its own. At the end of June, 1920, there were 76 members and 28 associate members, making a total of 104, as compared with 89 members and 14 associate members, or 103 altogether this year. Manitoba reported a decrease of seven, and in explanation of this the committee reported that in 1919 the association received into membership a number of returned men who qualified in one of the training schools for positions as sanitary inspectors. As most of them failed to get into positions in public health work, they obtained other employment and dropped out of membership. The report further stated:

"We are pleased to note that the membership in Ontario is gradually increasing. This is a very hopeful sign and we trust that the new members will be encouraged by others joining in their own province.

"The last annual meeting remitted us the matter of incorporation. We have not been able to do anything as the expense involved is at present prohibitive. We would recommend that this matter be held over until we have a larger membership and sufficient funds to put it through.

Plumbing Inspectors May Join.

"A communication was received from the Plumbing and Drainage Inspectors' Association of Ontario, enquiring as to the possibility of amalgamation with us. We replied that we were willing to consider the matter favorably. We have to report that the matter has not proceeded any further. We believe that amalgamation would be of mutual advantage to both organizations.

"We have pleasure in reporting that Messrs. Cowie, E.H. Fleetwood, W. A. Leggett, W. Pearson and W. Pillidge, all of Calgary, and C. E. Sutton, of Moose Jaw, Sask., were successful in obtaining the certificate of the Royal Sanitary Institute. They were accordingly raised to full membership.

"We would once more recommend that the members in every large centre get together as often as possible, especially during the winter months. Addresses, papers and discussions, or even the mere introduction of live public health subjects is sure to be of benefit to all. In conclusion, we desire to thank the branch presidents, branch secretaries and others who have helped to extend our usefulness during the year.

Report for Ontario.

Reporting briefly for Ontario, G. O. S. Laflamme, chief sanitary inspector for Ottawa, said he had tried during the year to interest a number of inspectors in the east, but so far without much result. The membership was yet too small to justify holding a branch meeting, but he was hopeful the annual convention would be the means of increasing the membership in this branch.

Sanitary Inspectors' Place in Health Campaign

Working in Conjunction With Local Boards of Health Sanitary Inspectors Can Achieve Much Good—Plumbing Inspector Should be Practical Plumber.

SPEAKING on the subject, "The Place of the Sanitary Inspector in the Present Health Campaign," Dr. C. A. Hodgetts, Director General of the St. John Ambulance Association, stated that Canada was as much alive to health questions as any other country in the world. He thought there was much opportunity for valuable work, but if it was to be successfully performed it would have to be done in the main by provincial authorities. Also the local inspectors must discharge their duties by direct contact with the people in their homes. He disapproved of representatives of various organizations attempting to make house inspections without authority from the local health officer and said: "I believe there were thousands of people who

would open their doors to fully qualified sanitary inspectors or health workers, who are very much prejudiced against allowing women and other representatives of organization to butt into their private affairs."

"The sanitary inspector has come to be recognized as an asset," said the speaker. "A few years ago, sanitary inspectors were appointed for political reasons, instead of for their ability, but that state of affairs has passed. I know something of the difficulties the sanitary inspectors are up against, as I acted as M.H.O. in Ottawa during a typhoid epidemic, and was constantly in touch with the sanitary staff.

Work With Health Boards.

"My opinion is that the principal

Continued on Page 37

Manitoba.

Alex. Barclay of Winnipeg, reported for Manitoba, stating that arrangements had been made for holding one meeting each month during the coming winter. He then outlined the proceedings of meetings held last year and said the officers were out to build the membership up again to what it was in 1919.

Saskatchewan.

The report for Saskatchewan was presented by William K. F. Durrant, in which he regretted that he had not been successful in getting a provincial convention this year. He placed a lot of value on meetings and hoped that the members would endeavor to get together as much as possible during the coming winter.

British Columbia.

The report for British Columbia, as written by H. S. Sturgess, vice president of the B.C. branch and read by the secretary, failed to show an increase in membership. He stated that with 23 inspectors within a radius of only a few miles, the branch had good reason to hope that with concerted efforts there would be quite a large membership in the province in a few years.

The secretary had not received any report for Alberta.

Duties of Rural Sanitary Engineers

Activity of Provincial Boards of Health Has Helped Educate People to Importance of Sanitary Measures—Special Course of Training for Inspectors—Should be Capable of Inspecting Various Local Industrial Plants, Homes, etc.

Paper read by Dr. Nelson before annual convention of Canadian Sanitary Association in Ottawa, Ont.

DR. NELSON'S paper on "The Duties of a Sanitary Inspector in a Rural District," was listened to by delegates to the Canadian Sanitary Association convention with a great deal of interest, and not a few of the delegates took note of some of the salient features. He said in part:

"Sanitary inspectors constitute one of the most important parts of the modern system of public health administration. It is a somewhat difficult task to describe the duties of these officers. In the past, those of the sanitary inspectors who represent the smaller towns and municipalities, can readily accord to their brother workers in the larger centres a more useful and active service than they claim for themselves. Various reasons are obvious. In city and town life the daily press has had access to nearly every house. This has been a great means of spreading education. Whole time sanitary inspectors have better opportunities for educating their public. Lectures and instruction to the public school children have been resorted to at regular intervals. The periodical advice from our board of health of the province, has been easier to disseminate, and therefore better absorbed in the larger fields. However, methods are changing. The activity of our provincial board of health has been so wholesome and practical, that the fountain source of our information deserves much credit. I believe it already holds the united respect and faithful fealty of all our sanitary inspectors both rural and urban.

Influence of Daily Press.

"There is scarcely a resident in the better districts but who receives at least one daily paper. The result is that the rural public is quite liable to get ahead of the sanitary inspector if he is not an enthusiast. The people living in the country are wiser than we sometimes think.

"I say, continue always to educate the public where most good will follow. To do this I believe our sanitary inspectors even in the country should be very carefully selected. It is true that in the past this has not been done. The constable, the truant officer or someone else who has really served his usefulness has, on too many occasions been chosen to fill this important and responsible position. I will admit that there are some rural municipalities

where one or more duties may be put upon the sanitary inspector and not diminish his service as such, but on the other hand there are many rural municipalities where such combined duties interfere greatly with the important duties of sanitation and inspection. I believe the chief cause of this lies at the door of the municipal governing board, who give the matter very little thought, or consider the sanitary duties of very little importance.

Inspectors Should be Trained.

"I would even go further and say that I believe our sanitary inspectors in the rural municipalities should have some previous training. Why cannot the provincial boards arrange a short course of training even were it only for a month, in which these men would glean a working knowledge of their duties and would therefore be better qualified to do a great amount of the work which now falls upon the shoulders of the rural medical officer of health. The Provincial Health Act of each province outlines in the rough, the duties of the sanitary inspector, but in the country districts he has not a working knowledge of the many duties which must necessarily come under his notice. He can keep a vigilant watch over all the streets, lanes, premises, etc., but can he inspect a slaughter house? If he does not know the proper regulations governing a slaughter house, how can he detect any defects?

"He should be able to inspect dairies, cheese factories, creameries, and industrial buildings. He should be able to advise caretakers of churches, schools

and assembly halls as to cleanliness, and the best methods of ventilation. He should be able to detect an improperly constructed well, and its possible source of contamination, and give instruction for remedying the same. He should have a working knowledge of meat and food supplies. He must warn all grocers and provision merchants whose premises invite flies. He must watch homes which are overcrowded. His duties are almost legion. There are numberless things to be done in public health work that a sanitary inspector under proper guidance can do equally as well as a medical man.

"Embodiment of Public Health Act."

"The public health work of the sanitary inspector has become almost a specialty and that specialty cannot under ordinary circumstances, be carried on successfully as a minor occupation. To enumerate all the duties that fall to the lot of the sanitary inspector would set forth a lengthy tale. He is, in a word, the embodiment of the Public Health Act, and the regulations thereunder. All that concerns the health of the public comes under his notice and is his business.

"In conclusion let me repeat that I believe even the rural sanitary inspector should be educated and trained for his position, for unless he is qualified for his task, his work, in whatever direction it may take him, will be of small value. In addition, I believe the sanitary inspector should be as little restricted as possible, as regards his activity."

SANITARY INSPECTORS' PLACE—Continued from Page 36

place for suggestions on sanitary matters to come from is the provincial board of health. That is the place to pull the strings.

"The sanitary inspector must realize that his work is of the greatest importance and that there are higher, better and more ennobling duties for him to perform in health work as time goes on. He is the successful sanitary inspector who has the tact and good judgment to discharge his duties in the face of opposition. And there is bound to be a lot of opposition as there are so many people of a suspicious nature in the world. The successful man will not attempt to force his way into the homes or show his authority, but will resort to reason.

Plumber is Needed.

"The inspector who looks after the

plumbing work requires to be a man who knows the plumbing business thoroughly—a man who has graduated with high honors.

"The routine of your duties must be followed out from day to day, but there are special duties such as enquiring into housing conditions, sewage, etc., which should attract the attention of the earnest and enthusiastic sanitary inspector. You gentlemen are virtually the eyes of your health officer. Your reports should always be made out so that the health officer can read them and thoroughly understand them. This requires a large amount of study and a certain amount of education. I would advocate the holding of classes for sanitary inspectors in the larger municipalities.

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Plumber and Steamfitter of Canada

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No. 18

BRIEFS

A PUBLIC health official was brought to a realization of the importance of having an expert plumber as an adviser in connection with city sanitation problems only after the death of a member of his family due to defective plumbing in the home. It is much to be regretted that precautions were not taken earlier and the tragedy avoided, but it may do much to save other lives in future for hereafter a competent plumber is to be a member of the local Board of Health in that city.

THE PLUMBER'S PART.

SOME helpful pointers are contained in this issue, the application of which to the business of the plumbing and heating operators, should bring valuable results. Interviews with manufacturers and wholesalers show that a definite improvement in the plumbing trade outlook is noted, which should help Fall business considerably. One of the important points emphasized is that of quality in plumbing installations. It is certain that if the sanitary engineer is to retain his prestige in that official capacity and all that it entails, he must see that shoddy equipment is eliminated in order that the installations will give full service.

There is no question but that harder work and possibly longer hours will be necessary for the plumbing and heating operator to hold his own in view of prevailing conditions, but in the final analysis it will be found that business secured by such effort will provide a good increase over normal business when the latter is also returned.

A good point for the craft to keep in mind is the placing of the plumbing and heating business upon a merchandising basis. This will call for the application of much effort to increase the use of plumbing and heating equipment, including "suggestion sales" such as are outlined in this issue. The points outlined will give some good leads which can be followed up to advantage, and there are many other good leads to be secured in every district.

VICTORY FOR TINSMITHS.

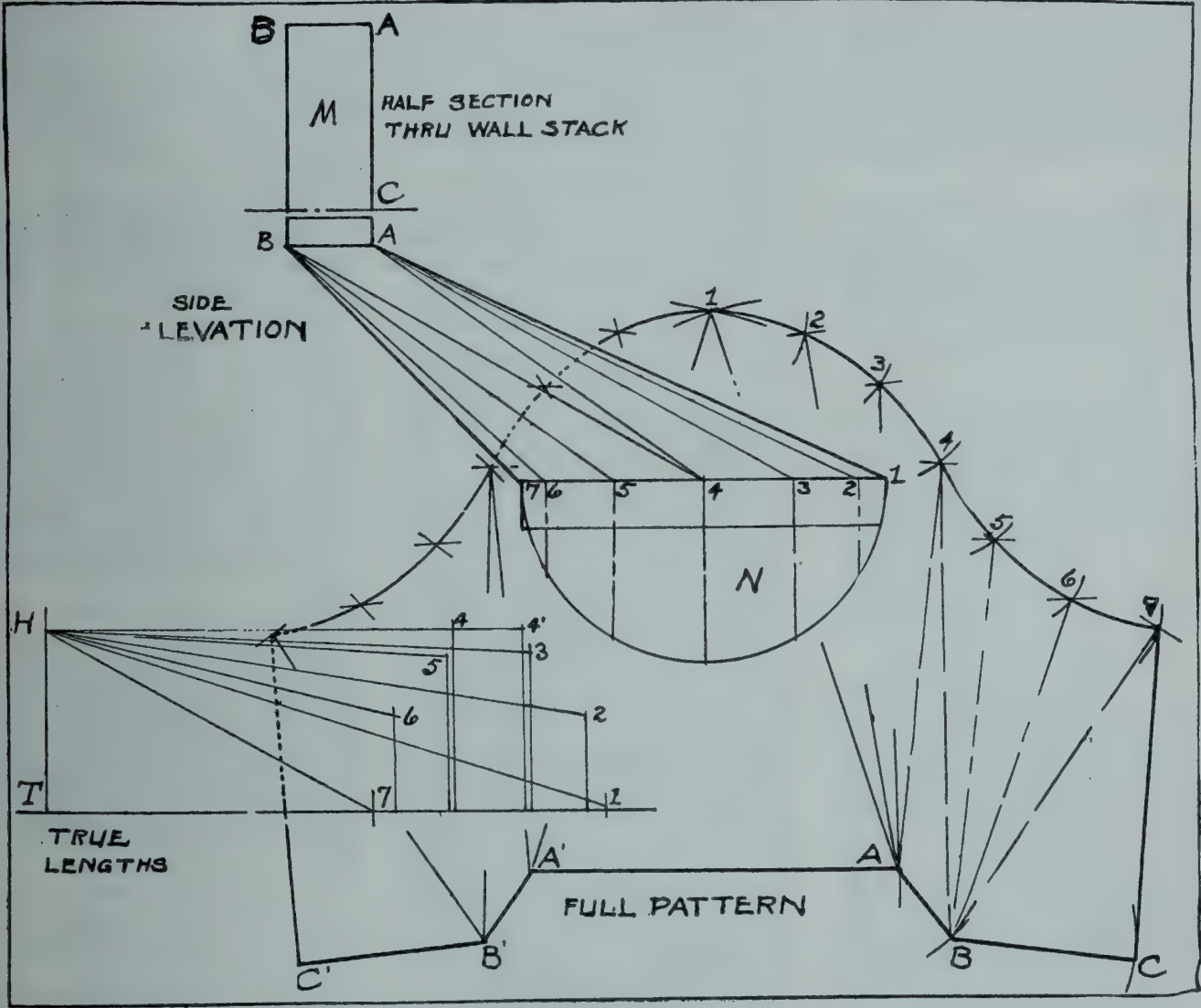
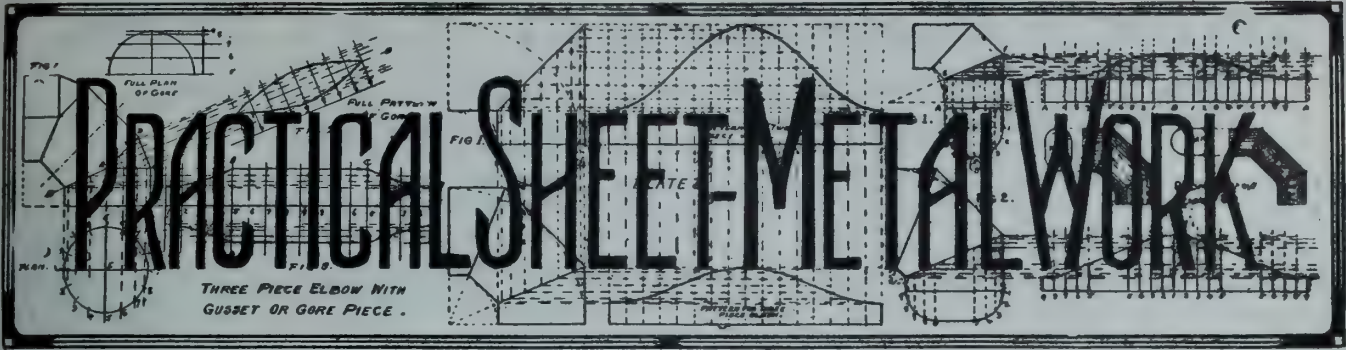
A VICTORY for the tinsmith is evident in the final ruling handed down by the Deputy Minister of Customs and Inland Revenue which makes a distinction between work done by a tinsmith and thereby settles the question as to whether or not he is liable to a manufacturers' license and compelled to collect sales tax on his product. The distinction is that the sales tax is to be collected only on goods manufactured for stock and not on goods made to the order of individual customers. Separate accounts are to be kept for the various departments of the business showing clearly whether goods are produced for re-sale or for special order.

This point has caused a great deal of controversy for some time and strenuous objection has been taken by the trade. Sanitary Engineer has had a hand in helping to secure action by setting forth the unfair conditions which the ruling brought about. This objection was taken through the paper and by personal representations to officials at Ottawa.

PROGRESS OF SANITATION.

IN connection with the progress which has been made in the plumbing and heating industry in recent years, it is interesting to look back and review the trend of thought which has led up to the general acceptance of the principles of sanitation which now form such an important part of our existence. There is the story for instance of the sensation created in the United States in December, 1842, when Adam Thompson put in his house in Cincinnati the first bath tub. Physicians said it would cause rheumatism and inflammation of the lungs; letters appeared in the newspapers protesting against a snobbish inclination to imitate the degenerate aristocracy of Europe. The Common Council of Philadelphia almost passed an ordinance forbidding bathing in winter. Virginia put a tax of \$30 per year on every bath tub and a plumber who invented a zinc tub could not obtain a patent. But all attempts to check the beneficent reform were in vain. Thompson, it is true, got the idea from England, but he converted the Spartan tub into a luxury, making his bath long enough to recline in and equipping it with running hot and cold water.

Philosophers have, from time to time since the foregoing event, written at length of the universal desire of those on the American continent for comfort and material well-being. Inventors on this continent have been continually at work upon devices for saving labor and for making the home sanitary. The result of their effort is that plumbing and heating engineers are today provided with the equipment which is so necessary in every household and building. Plumbing and heating engineers are the exponents of a principle which has been proved throughout the ages and which will yet stand much publicity. With the equipment perfected it remains for much effort to be expended to bring property owners to a realization of the vital importance of having the utmost sanitary protection.



Pattern of Furnace Boot

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the
David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.

LAYOUT for pattern of furnace boot is as follows:
First draw the side elevation, making the off-set B-7 or A-1 any desired angle or length you wish. Then draw sections M-N.
Section M is for the wall stack and is made to suit the standard size pipe used, while section N is used for the leader pipe and diameter is made to suit.
Observe both bases as A-B and 1-7 form parallel lines, so that no miter is

developed.
Divide the section N in any number of equal points and square lines to the base 1-7, which gives points 2-3-4, etc. By drawing lines to the corners A and B, you thereby divide the elevation into triangles.
To set out the true lengths, we draw a right angle as H-T-i. Make H-T equal to the half of the width of wall stack or in this case, equal to A-C of section M.

Now pick the lines from elevation as A-1; A-2; A-3; A-4; also B-4; B-5, etc., and set on horizontal line T-1.
From each of these points, erect lines to equal those half sectional lines in M. This gives points 2-3-4-5-6 in true lengths. Draw lines to the point H and you have the true lengths.
To set the patterns, draw a line as A'-A equal to twice the length A-C of M. Now pick true lengths H-1 and
Continued on Page 40

Plumbers Participate in "Gala Week"

Special Demonstration Arranged by Merchants in a Section of Toronto to Stimulate Local Buying—Plumbing Displays in Floats and Windows Arouse Much Interest and Bring Good List of Prospects for Future Work.

"GALA Week" was recently held by the business men of Danforth Avenue, Toronto, the idea being to encourage buying in the district. The merchants on this three-mile stretch of business street, located on the outskirts of the city, have been affected to some extent by the too frequent tendency of local people to shop down town, and the recent demonstration, which is only one of a number already held and others planned for the future, helped to achieve the object of demonstrating that buying could be done in the district to equally good advantage from the standpoint of prices and other advantages were enumerated.

Undoubtedly the conditions existing in this district are similar to those prevailing in sections of other cities and in towns located near to a large city. The steps taken by the merchants in connection with the Danforth Community Sale will therefore be of interest to plumbing and heating engineers and others planning means to combat this tendency.

Investigation proved the fact that many of the inhabitants of the Danforth district dealt with downtown firms because of the habit which they had developed when living in closer to the down-town section. With the natural growth of the city they have moved to the outlying districts, but they find it hard to break away from the original connections. In other words, they have not been taught the advantages of giving support to local interests.

The Problem to be Faced.

At the present time steps are being taken to somewhat curtail purchases of Canadians of goods required to be brought in from abroad, in the interests of Canadian industry. The same problem on a smaller scale faces the district merchant in a large city or the town merchant located near the large city. The customers of both stores want to patronize the outside merchant, though their convenience is often served by the local merchant who is deserving of their whole support. Merchants have come to realize that there is no use bemoaning this tendency, that the only thing to do is to adopt means of overcoming it and educating their customers in the right direction. Hence the decision of the Danforth merchants to put on a demonstration of what local merchants could provide and the prices they could offer.

For the information of other merchants planning similar demonstrations, and judging from the enquiries recently received, there are quite a number interested in the question of Community Sales, full details will be given here-with.

Placing Responsibility.

The Business Men's Association, representing all branches of retail trade in the district held their meeting, and decided to hold the affair. Committees were subsequently formed to deal with the various branches of trade represented and a chairman of each com-

mittee appointed, his duty being to stir up as much enthusiasm among his branch of trade as possible. One of the first important steps was to make sure that no hawkers and peddlers would be allowed on the street to take advantage of the merchants' efforts at assembling a crowd. Another step which should be taken at this stage is to see that automobiles are kept off the street when the big parade is in progress, difficulty having been experienced in connection with the demonstration, due to sight-seers' automobiles being allowed on the street. Protection in both of these matters can be secured from the local police department.

Other matters dealt with in the preliminary arrangements were to do certain advertising in the city newspapers and the local newspapers, this advertising being paid for by the association. Posters for stores and stickers to be applied to parcels were provided fully a week in advance, in order to be sure that everyone would know what was coming.

Arrangements were also made to have banners strung across the street at various intervals, announcing the dates of the demonstration. Merchants were encouraged to give the affair all possible publicity, to arrange unique stunts to attract attention, and to do everything in their power to show the buying public why they should deal at local stores.

The Gala Week started on a Saturday evening and the street was fittingly decorated for the occasion. Special sales were in progress in most stores with windows dressed effectively. Community dances and other frolics were provided at various places on the street and in tents on vacant lots along the way.

The Big Parade.

On Tuesday evening the big parade of floats representing the retail stores, was held. This proved a very popular affair, there being a continuous procession for well over two miles long, some merchants having as many as three or four floats. Prizes had been provided for both the floats and the window displays, judges being selected from among the wholesalers and manufacturers' trade and daily newspaper men.

Prizes were donated by wholesalers and manufacturers for the best window displays and floats.

The parade itself was assembled in three sections. The eastern group commenced the parade, moving towards the west, the centre group having been assembled on a side street, falling in behind the eastern group as it passed them and the western group falling in at the rear when the parade had passed the western extremity. The whole parade thereupon reversed and proceeded down the full length of the Avenue with all sections complete. The western and eastern groups returned when the eastern extremity had been reached.

Souvenirs on Parade.

Marshals were appointed in charge of each group in the parade, with the officials of the association leading. The

floats were gaily arranged to exhibit some particular phase of the trades represented, and a great deal of time and money was spent by some merchants in this manner. Souvenirs of all kinds were thrown to the crowds which lined the avenue as the parade proceeded. Bands were placed at intervals through the parade, and helped encourage the spirit which is so necessary in an affair of this kind. A crowd of people estimated at 25,000, from the district, assembled, and many expressed surprise at the wide range and quality of products which were available right near home. Vehicles in the parade are said to have numbered 1,200. The parade commenced at 7 p.m.

The whole avenue presented a brilliant kaleidoscopic effect, with brightly illuminated stores, flying flags, sidewalks crowded with summery-attired humanity, and the parade a colorful streak, winding through it all.

Moving pictures were taken of the parade by theatres located on the avenue, there were shown for some days after the parade was held and helped to preserve the good effects of the affair as well as to show it to those who were unable to view it originally.

From the standpoint of the plumbing and heating trade, much interest was taken in the event, windows being trimmed for the occasion, special demonstrations and contests being put on and much time spent in arranging attractive floats.

Complete bathroom sets in a model room were arranged by some plumbers on motor trucks and men employed to assemble and disassemble the equipment while the parade was in progress. Other accessories and equipment sold by the plumbing and heating firms was also demonstrated in the parade and special window displays arranged by the many plumbers located along this avenue. Considerable interest in local merchants was said to have been stimulated by the affair.

Continued from Page 39

using A and A' as centres, strike and cross arcs in point 1.

Then pick the girths space as 1-2 on the circle of N and using the new point 1 in pattern as centre, strike small arc 2.

Then pick true length H-2 and using A as centre, cross arcs in point 2.

Next strike small arc 3 and cross this with line H-3. Repeat this with point 4.

After this pick the line A-B of elevation and using A in pattern as centre, strike arcs as at B. Then pick true length H-4 and using point 4 in pattern as centre, cross arcs in point B. After this repeat the triangling method until points 7-C are established. We should say that 7-C of pattern is equal to B-7 of elevation. Laps for joining collars must be allowed extra.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

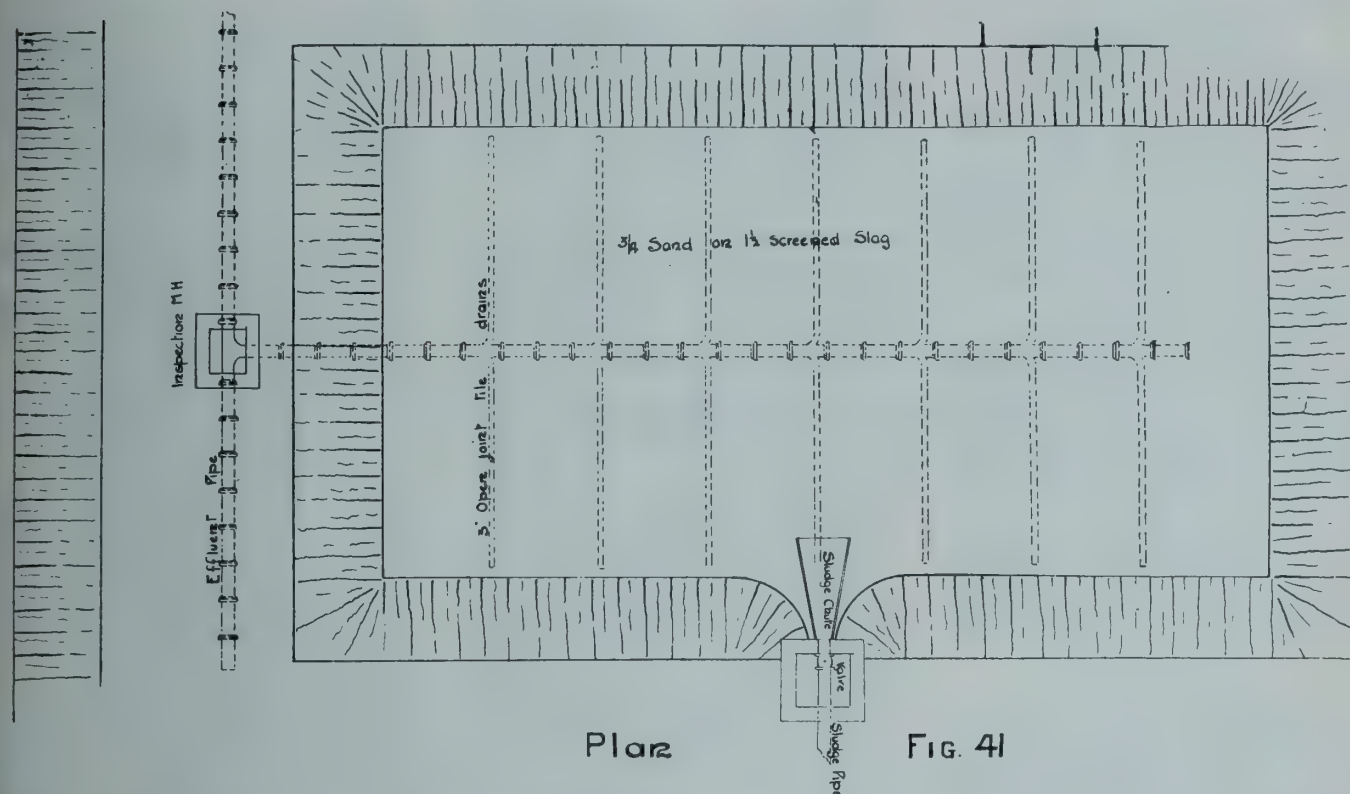


FIG. 41 shows plan, cross and longitudinal section of an earthen constructed sludge bed, suitable for treating the sludge from an Imhoff tank installation. The earthen slopes are constructed at a slope of $1\frac{1}{2}$ to 1 and either sodded or seeded. The sludge pipe from the tank should be laid at a grade of 1 in 25 and discharged through a valve chamber onto a concreted apron constructed at the highest elevation of the bed so as not to disturb the broken slag on discharging.

The bed is well under-drained by means of a 3 in. open jointed tile drain, laid at ten feet centres, discharging into a 6 in. or 4 in. jointed vitrified main tile sewer connected to the main effluent pipe which discharges into the nearest water course.

The bottom of the bed should be of hard soil (preferably clay) excavated to the required inclinations for giving the necessary fall on the drains. On this about 1 in. to 3 in. of coarse broken slag is spread over the whole area with a $\frac{3}{4}$ in. covering of sand, which requires renewing from time to time. The sludge is discharged on the top of this bed and allowed to dry out, then removed where required for filling-in purposes—it now being quite harmless and free from odour.

A longitudinal section of a plain undrained bed or lagoon is shown, where the sludge is run direct onto the earthen bottom and allowed to dry out by climatic conditions and removed from time to time. This form of bed in time becomes a nuisance and should be well sprinkled with chloride of lime from time to time.

WATERWORKS EXTENSIONS IN OTTAWA.

In order to safeguard the city of Ottawa's water service, the Board of Control has recommended to the city council that application be made for special legislation to authorize the issue of debentures to the amount of \$135,000 to construct a duplicate 51 inch pipe from Wellington street to the Queen street pumping station.

A.F. MacCallum, commissioner of works, reported to the board of control that it was essential. In fact, in his annual report for 1919 he stated that this would have to be done within two years: At present there are two 51 inch pipes from the Lemieux Island pumping station to the east end of Wellington street viaduct and from there to Bronson Avenue, one 51 inch pipe connecting with the distributing system. In

the event of an accident making necessary the closing of this single pipe it would cut off the Lemieux Island station. At present the Queen Street station is used in such an emergency. This station is served by an under-water pipe and the commissioner states that in a year or so this pipe will have reached the end of its usefulness. To use it then would be to draw in the polluted water from the bay. The commissioner recommends that a second 51 inch pipe be constructed from the Wellington St. viaduct to the Queen street pumping station and there connected to the pump and also the city distributing system.

The estimated cost of the work is \$122,000, but to allow for emergencies, the board will ask for authority to raise \$135,000. The special legislation could not be secured before February, but everything could be in readiness for a start early in the spring.

TO BUILD SEWERS.

Sewering of the new Lake Shore road, requested by the Harbor Commission, was approved by the Board of Control, Toronto. A by-law will be introduced at the first regular meeting of council. The cost of the sewer will be \$300,000.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—Hickey & Aubut, plumbers have dissolved partnership.

Oakburn, Man.—J. H. Rankin, tinsmith, has discontinued business.

Drumheller, Alta.—The firms of Dignan and Riley, Plumber and Tinsmiths, has been dissolved. Mr. Riley has sold his interest to Mr. Dignan who will carry on the business in the basement of the new Loretto Block. Mr. Riley has left Drumheller for Oregon.

Moncton, N.B.—The branch plumbing business of Thos. Johnston Co., of Sunmerville, P.E.I., has recently been re-organized and is now known as Johnston Co. Ltd. F. A. Johnston, pres.; H. L. Callbeck, vice pres.; A. D. Leger, sec.

F. C. Johnston is a son of the former owner, Thos. Johnston.

Bradley & Walsh recently acquired the plumbing business formerly conducted by H. P. Marquis in Campbellton, N. B. They report twenty new stores and houses being erected there and are getting their share of local work.

NEW FIRMS.

Indian Head, Sask.—In a recent issue of Sanitary Engineer the name of T. E. Niven, was misquoted in connection with his commencing plumbing, heating and general tinsmithing business at Indian Head.

FIRE LOSS.

Montreal.—D. Benoit, engaged in the plumbing business in Montreal, has suffered some loss to his business through a recent fire.

INCORPORATIONS.

Ontario Potteries Ltd. has been incorporated in Ontario with head office in Bowmanville, Ont. and capital of \$100,000 to manufacture tile, sewer pipe etc.

Northern Plumbing Supply Co. Ltd., has been incorporated in Ontario with head office in Toronto and capital of \$75,000 to carry on a wholesale business in plumbing supplies.

OBITUARY

Fergus, Ont.—Matthew McClanahan, plumbing and tinsmithing, died recently.

OPENING SHOWROOM.

St. John, N. B.—R. D. Harrington, plumber, formerly at Sidney street. St. John, N. B., recently bought a building at 5 Dorchester street and is re-modelling it for an up-to-date showroom, and with work shop in rear.

BUSINESS FAIR IN BATHURST, N.B.

Even though business is almost at a standstill in the lumber industry, on which Bathurst, N.B., depends, the trade claim there are at least, a dozen new homes being erected there. Plumbers report business as fair.

PLUMBING WORK ACTIVE.

St. Andrews, N.B.—A. Dobson, plumber, reports business particularly good. A water system has been installed in the town at a cost of \$100,000 and all householders are anxious to have connections with their homes. Grant and Co., St. John, have had charge of the street work. Mr. Dobson has eight men employed and could use others if available.

PLUMBER SEVERELY INJURED

Peterboro.—As a result of a fall from a scaffolding to the cement floor nine feet below. Wm. Arthurs, a steam-fitter employed by W. R. Turner, recently suffered serious injury. He was wrapping steam pipes in one of the new buildings at the Canadian General Electric plant and is believed to have become dizzy and lost his balance. He sustained a fractured skull.

NOW MAKING PLUMBERS' OAKUM.

The Acme Waste Mfg. Co., Toronto, is now manufacturing plumbers' and marine oakum. This firm claims to be the only firm in Canada making this product.

PLUMBER SUFFERS INJURY

A. D. Leger, secretary of Johnston Co., Ltd., plumbers, Moncton, N. B., recently suffered a most painful accident when a plumber's furnace he was using exploded. He was severely burned about the face and arms. He was confined to a hospital for three weeks and is now able to be around. It will be several weeks yet before he can resume work.

COMPLETE ARRANGEMENTS FOR MONTREAL'S NEW HOTEL.

Montreal.—Final arrangements were completed for the construction of one of the largest, if not the largest, building enterprises in the history of Montreal, when at a meeting of the directors of the Mount Royal Hotel Company the contract was formally let for the new \$9,000,000 hotel to Thompson-Starrett Co., New York.

The inception of a project of such magnitude at this time, providing work for thousands of builders and others employed in fashioning construction materials and interior equipment, and in-

volving the expenditure of millions of dollars within the space of a year, is expected to have a stimulating effect upon general business conditions, building operations and real estate value.

The construction company guarantee the completion of the building, ready for opening, by October 1st, 1922.

BUSINESS ACTIVE IN MONCTON, N. B., SAYS PLUMBER

E. T. LeBlanc, plumber, Moncton, N.B., in conversation with Sanitary Engineer, stated there was enough work in this city to keep all busy.

This city is said to be doing as much building as any place in Canada for its size. In addition to 40 houses recently erected, tenders are being asked for work to be done on the two new fraternal halls, viz., Knights of Pythias and Orange. Each will cost in the neighborhood of one hundred thousand dollars. The Orange Hall will have five stores on the street front, three apartments and lodge and banquet hall.

Mr. LeBlanc said there was at least twenty per cent. more work in July than in June.

This good condition is perhaps due to the fact that Moncton is now the eastern head office of the Canadian National Railways.

Moncton boasts a local organization of the Domestic Sanitary and Heating Association, which sets a fair scale of prices and also makes arrangement with the wholesalers that they will sell only to the trade; no contractors or individuals being sold. In this way the plumber can get a fair price for his work. Unfortunately, a couple of members, said to be unable to stand prosperity, left the association and started cutting their prices. The loyal members claim these merchants will put themselves out of business before spring, through their action.

Letters to the Editor

APPRECIATES SHEET METAL COURSE.

Editor Sanitary Engineer:

Your course on sheet metal drafting has been a great help to me at times and I hope it will be the same for other tradesmen.

Thos. Emsly Niven, Indian Head, Sask.

LIKES SANITARY ENGINEER

"I like Sanitary Engineer very much and always read it thoroughly. I prefer it to American publications," is the statement of N. M. Mackie, Westmount, P. Q.

WESTERN ONTARIO NEWS

W. G. Murray, Dominion Savings Building, London, Ont., is preparing plans for a new \$25,000 church for the Methodist congregation at Centralia, Ont., and wants prices immediately on heating and electric lighting.

Prices are wanted immediately on hot air heating and plumbing for new \$10,000 school for S. S. No. 22 Westminster Tp. R. B. Stewart, St. James Park P. O., London, Ont., chairman of building committee.

A. McMillan, Lakeside, Ont., is preparing plans for ten new summer homes to be erected for tourists, and wants prices on plumbing and electrical equipment.

Plans are being prepared by the Salvation Army at London, Ont., for a new Children's Home, and six special cottages. Adj. Martin is in charge of the work and wants prices on heating, plumbing and electrical work.

John Glenn, 31 Blackfriars St., London, Ont., wants prices on heating and plumbing for new \$5,500 bungalow.

The Wright Teale Co., London, Ont., have been awarded plumbing and heating in connection with new \$12,000 duplex for Mrs. G. Powell.

Contracts have been awarded and excavating is in progress at both London and Hamilton for new \$55,000 warehouses for Crane Limited.

H. Langford, 361 Talbot St., London, is preparing plans for new \$9,000 residence and wants prices on heating, plumbing and electrical work.

Alf. Gibbons, London, Ont., has been awarded contract for heating and plumbing for new \$7,000 residence for R. G. Blakie.

J. Willis, 565 Richmond Street, is preparing plans for new \$10,000 residence and wants prices on heating, on plumbing and on electrical work.

Buchanan and Foster, of Leamington, have been awarded the plumbing and heating contracts in connection with the new high school at Kingsville, Ont.

Miss L. Milne, daughter of Alex Milne, sanitary engineer, London, Ont., won a prize in the ladies' swimming contests at the recent big aquatic meet held at London.

John Abbott, Lucan, Ont., wants prices on hot air heating, plumbing, and electrical work for new residence to cost \$5,500, in London, Ontario.

W.W. Scott, 25 Elmwood Ave, London, wants prices on plumbing and heating for new \$4,500 residence on which work is starting.

Wm. Lankin, 7 Edna Street, London, wants prices on hot air heating, plumbing, and electrical work for new \$4,000 residence.

William Millar, 145 Barker Street, London, Ont., has commenced the erection of three new dwellings to cost \$12,000, and wants prices on heating and plumbing.

City Engineer Harry Brazier, City Hall, London, is preparing plans for three new siphon lines to cost \$15,000, in connection with sewage improvements and wants prices on 8 inch and 12 inch cast iron piping.

Tenders will be received until September 7 for heating, plumbing, and electrical work in connection with new \$15,000 parsonage for the Methodist congregation at Strathroy, Ontario, John Downham, chairman of the Building Committee.

Good Baseball in Plumbers' League

Dominion Radiator Co. and Society of D.S. and H.E. in Close Race—Grinnells Won First Series—James Morrison Brass Team Has Had Hard Pull.

THE TORONTO Plumbing and Heating Supplies Baseball League are now on the last lap of their second series, and three out of the four teams are staging a merry old argument for the honors. Grinnells won the first series, and do not need to worry as much as the other two teams, Dominion Radiator and the D.S. Heating Engineers, as they are already sure of a place in the play-off. D. S. H. E. have one more game to play with Grinnells, while Dominion Radiator also have one to play with the winners of the first series. It looks at present as though it will be between the Engineers and the Radiator boys for the top rung of the ladder, and either team will give the Grinnell hustlers a bitter argument for the league championship, which will be decided in two out of three games.

We must not forget the fourth team, James Morrison Brass, who, although out of the honors for this year, are sure deserving of a great deal of credit for sticking to the ship in spite of their low standing, and had the satisfaction of upsetting the dope in the second series by handling Grinnells a 9-7 trouncing. They could rightly be called the luckless wonders, as they lost some tough old games by the one and two-run margin after being out in front.

City Engineer Brien is preparing plans and a bylaw will be submitted to the ratepayers in January for a new public comfort station at Windsor, Ont. to cost \$20,000.

William Perrin, Blenheim, Ontario, wants prices on hot air heating, plumbing and electrical work in connection with new \$7,000 residence.

Thomas Jacklin, Blenheim, Ontario, is preparing plans for new \$5,000 home and wants prices on hot air heating, plumbing, and electrical work.

Hadley McDonald, Ruthven, Ontario, is preparing plans for new \$10,000 residence and wants prices on heating, plumbing and electrical work.

IMPORTANT JUDICIAL DECISION

An important decision was rendered in the Hull, Que., courts a few days ago by Recorder Desjardins, in the case of Hector Buron and Adrien Bastien, who accused Josephat and Valmore Lamarche with using intimidation towards them during the course of the recent strike of the International Plumbers' Union in this district.

Recorder Desjardins found the accused guilty and fined them \$5 and costs each, with the alternative of fifteen days in jail.

The case was one where Buron and Bastien, two members of the National Catholic Union, were at work on the construction of a school in Hull, when

Grinnells do not appear to be as smooth a working team since they lost the "peppery" Cosgrave behind the bat, but Manager Cannon claims they will be on top at the finish. They are an outfit that battle all the time and can come through in the pinches.

Swing, of Dominion Radiator, shapes up like one of the best players in the league. He is now doing the receiving and is holding Gillen up in good form. And he is a regular bear with the old war club. He fits in well in the smooth-working team play of the Radiator Makers.

The D.S.H.E. team are one great band of sluggers and make life miserable for the opposing pitchers, as they are liable to break out any old time.

The batting leader is Mortimer, of the Morrison Brass, with the grand average of .473 for seven games. The rest who have played in six games or more to date are as follows: A. Byrne, D.S. H.E., .458; Radke, D.R., .450; R. Byrne, D.S.H.E., .439; Swing, D.R., .408; E. Byrne, D.S.H.E., .400; Ramsey, D. S. H.E., .392; Hughes, M.B., .379; Kerr, M.B., .379; North, D.R., .367; Spellman, D.R., .364; Abbott, D.S.H.E., .355; W. Menzies, D.S.H.E., .350; Coffey, D.R., .350; Griffiths, D.S., .324; Cannon, Gr., .322; Porter, M.B., .312; Bentley, D.R., .303.

they were approached by the Lamarche brothers, members of the International Union, who by the use of threats endeavoured to induce them to quit the job and join their organization.

In rendering judgment, Recorder Desjardins held that the right of every laboring man to work at whatever trade he chose, or without a union affiliation must be respected. "Those members of labor unions who desire to go on strike have that privilege," said the recorder, "but they must not be allowed to interfere with those who desire to continue at work, and who are the best judges of what is desirable for the interests of themselves and their families."

WITHOUT COMMUNITY HEAT

Chatham, Ont.—The business section of the city is facing a serious problem owing to the announcement made by the Chatham Steam Heating Co. that operations would be suspended for the coming winter. Abnormal fuel conditions is the reason of the company's action.

Practically all the business places along King street are heated by the central system, many of the blocks that have been built in recent years not being equipped with chimneys.

There will have to be some hustling done in the next few months if the various blocks are to be equipped with heating apparatus before the winter sets in.

Master Plumbers Complain

Montreal Plumbers Claim Business Tax is Unfair, Journeymen Who Leave Employers Obtain Business Without Being Taxed. Delegation from Master Plumbers' Association Will Lay Case Before Aldermen in October.

Montreal.—D. A. Bethune, president, H. Lauigeur, vice-president, and W. J. Graham of the Master Plumbers Association composed a delegation that waited on and discussed with some of the heads of the City Hall the question of the present By-law, as it deals with contracts in general, regarding the business tax. This committee was formed at a recent meeting of the Association to deal with the matter.

The contractors in question, speaking for their Association and contractors in other building lines, claim that the manner in which the business tax is levied upon them and not against others competing with them, constitutes an injustice.

It was pointed out that it is a matter of common occurrence for a journeyman plumber or a journeyman electrician, or a man of another trade to leave his employment with a contractor, perhaps because there is no work for him, and to take little contracts on his own behalf. Some of these contracts are one man jobs; in other cases the journeyman plumber in question joins one or

two others of his fellows and gets business. The grievance is that in such cases these odd contractors, who come and go and often have no offices, pay no business tax to the city, whereas the contractor who is in the business all the year round has his office, pays rent for a business place and business taxes as a consequence.

How to obviate this so-called unfair competition is a matter in which no definite solution has been arrived at, and it is admitted that the problem is one which is hard to solve because of the fact that these small odd-time contractors often have no offices, doing their business from their residences, and do not stay in business for a long time.

It was suggested to the delegation which went to the City Hall that they should draw up some suggestions to submit to the new council for the purpose of having an amendment introduced in the Business Tax By-law. The Committee will continue its work and endeavour to lay a concrete plan before the City Council in October.

SANITATION INCREASES AVERAGE SPAN OF LIFE

The average life of man has lengthened four years in the last quarter century, despite the crime wave, war, automobile and other hazards.

"Within another generation the allotted threescore years and ten will be a thing of the past," Dr. George W. Hoagland said, basing his claims on mortality statistics of the American Insurance Union, of which he is secretary.

"Improvements brought about in sanitation, the nationwide anti-spitting fight and other steps have contributed toward man's longevity," Dr. Hoagland said. "Severe epidemics of typhoid and malaria which formerly took such a huge toll of life, no longer are known."

TYPHOID OUTBREAK TRACED TO PRIVATE WATER SUPPLY

London, Ont. —The recent outbreak of typhoid fever at the Ontario Hospital for the Insane has been traced, Dr. Robinson, the superintendent, states, to the private water supply of the institution, which uses its own artesian wells system, surface water having got into the wells during heavy storms. As a result only city water is now being used at the hospital.

MONTREAL'S NEW PUMP HOUSE.

Montreal.—Adding to the improvements, on which the City of Montreal is spending millions of dollars in order to provide at all times the population of this city with an adequate and even abundant supply of water, the contract

for the new half million dollar pump house has been awarded. The new structure will be the future low level pumping station in Point St. Charles.

The Director of Public Works states that work will be started in a week, that all the foundations would be laid this year, and that the steel work would be begun this fall, and that the work would go on during the winter thus affording considerable employment to the workers of Montreal. In accepting the tender, the Administrative Commission stipulated that the contracting company employ, as far as possible, Montreal labor, and, conditions being equal, preference be given to Montreal firms in the purchase of material.

The Director of Public Works further remarked that three new electric pumps, each having a daily capacity of 30,000,000 gallons, would be installed in the new building, and that the two other electric pumps now in use at the present pump station, each of 30,000,000 gallons capacity, would be transferred to the new building. There would also be accommodation for a sixth pump of the same capacity, which would be installed later.

The average water consumption in Montreal is about 75,000,000 gallons per day, by which it may be seen that the new pumping plant will supply Montreal with water for some time to come. It is the intention of the city authorities, however, to retain the present steam pump plant as a reserve.

TENDERS WANTED

Tenders are being asked for new St. Peters school 250,000 and Newman St. school 140,000. St. John, N. B.

TO INVESTIGATE WATER SOURCES

London, Ont.—London has decided to have an exhaustive investigation made of possible sources of spring water supply in and around the city, and a number of experts who have been engaged by the Public Utilities Commission are now here making preparations to go ahead with the work. The investigation is not to cost more than \$3,000, test holes to be sunk in various places at a cost of \$2 per foot. If water is struck the experts will sink wells, and these the city will not be bound to take over unless a flow of 500,000 gallons per day is developed. It is also the intention to sink large wells from 24 to 36 inches in diameter, capable of a flow of from 8,000,000 to 10,000,000 gallons per day. Unless a proper supply of spring water can be shown which will meet the city's needs for some years to come, London will shortly be compelled to go to the lake for water for practically all purposes.

DID NOT WANT REINFORCED CONCRETE PIPES.

Ottawa, Ont.—Philanthropy defeated its own ends when the Ottawa Board of Control, a few days ago, decided finally how a sewer on Waverley street was to be built—a question that vexed many meetings of both the Board and the City Council since the first proposal was made several weeks ago. J. R. Douglas, a local contractor, came to the Board of Control with the offer of a \$15,000 gift to the city charity department if he was awarded a contract at \$70,000 for constructing the sewer; this being the figure arrived at for the work by the city. Because Mr. Douglas refused to use the pipe specified by Commissioner of Works Macallum, the offer was rejected. The pipe item, incidentally, amounted to about a third of the whole job.

Mr. Douglas offered to put up an accepted check for \$15,000 in "as many minutes" as he stated. However, as the debate proceeded it became evident that Mr. Douglas while willing to build a sewer, was not willing to follow the specifications laid down by the city engineering department. He wanted concrete pipe, reinforced by wire, and the trench laid with brick, which he claimed would make a better sewer than the city had planned, while the commissioner of works referred contemptuously to Mr. Douglas' reinforcement plans as "chicken wire". The result was, Mr. Douglas left the board meeting declaring it was evident the board did not want to give him the contract, while the members of the board declared that Mr. Douglas would not accept the city's conditions, and agreement was therefore impossible.

After Mr. Douglas left, the contract for the pipe for the new sewer was let to the Dominion Lock Joint Pipe Company for 36 inch pipe at \$4.85 a length and 42 inch pipe at \$6.03 a length, the total pipe cost being about \$18,000, or \$2,000 less than the city estimate. The pipe, which is of reinforced concrete, will be made in Ottawa.

Mr. Macallum later explained that pipe such as Mr. Douglas proposed to use was not put down more than 10 or 12 feet under ground, whereas the Waverly street sewer will go as deep as 39 feet in places.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

ANOTHER lengthy list of price changes features the market on plumbing and steam-fittings supplies. Among the decline in quotations are class A malleable pipe fittings, standard globe, angle and check valves, standard roundaway stop and waste cocks, stove pipe, copper and brass goods, dull Canada plates, pipe cutters, bar iron and steel, sheets and plates, eavestrough and conductor pipe, Irwin car and auger bits, and certain makes of files. Further reductions are also shown on scrap material prices, while the ingot markets remain dull, with a noticeable lack of active interest.

MONTREAL

MONTREAL, September 7.—Reductions in prices of plumbing supplies continue to hold interest in the market. Many important lines are now reduced, although two changes in the nature of an advance are made. Featuring, are the lower prices on eavestrough and conductor pipe, iron and steel, sheets in general and soil pipe. Eavestrough and conductor pipe are now quoted less 60 and 10 per cent., the extra 10 per cent. being added to the discount. The different kinds of iron and steel bars are practically all reduced 15 cents per 100 lbs., while the discounts on both soil pipe and fittings have been increased. The reduction on sheets includes black, galvanized and dull Canada plates. Copper and brass rods, sheets and tubes have new lower prices. Pipe cutters also show a decline in price, and closet seat hinges are now quoted at \$2.40 per dozen.

The discount on enamelled ware has been revised to 20 and 10 per cent. off list, with most jobbing houses, bringing prices a little higher, and malleable fittings are revised to higher quotations.

Ingot metals have improved somewhat and business among jobbers and distributors is now reported as showing a little more activity, lending an encouraging outlook to fall business.

COPPER AND BRASS GOODS REDUCED

Montreal.

Quotations on both brass and copper sheets, rods and tubing are now slightly lower. In brass, sheets and rods are reduced 2 cents per lb., and tubing shows a decline of 3 cents. Copper rods, sheets and tubing are each lowered 2 cents per lb. This is said to be the result of the easier tone of the ingot metals which now show a decided improvement. Following are new prices:

BRASS—	
Sheets, base	0 25
Rods, base ½ to 1 in., round	0 23
Tubing, seamless, base	0 32

COPPER—	
Casting ingot, see weekly report	
Rods, ½ to 2 in.	0 30
Soft sheets, plain, 16 oz. heavier lb.	0 30
Plain tinned, 16 oz. and heavier, lb.	0 37
Polished and tinned, 16 oz., heavier, lb.	0 42
Tubing, lb.	0 34

Above prices are full sheets and bars. Cut sheets and bars are 5c per lb. higher.

A REDUCTION IN PIPE CUTTERS.

Montreal.

A reduction of approximately 10 per cent. is made in the quotations of both Barnes and Saunders pipe cutters. Barnes is quoted at 35 per cent. off list, Saunders at 20 per cent. off.

IRON AND STEEL PRICES LOWERED

Montreal.

Practically all lines of bar iron and steel are reduced to the extent of 15 cents per 100 lbs., bringing the base price of common bar iron down to \$3.25.

The trend of the steel market continues on a gradual decline; gradual because the reductions in the past two instances have not been of such a marked character as was given out in

Easier price levels on the primary steel markets have been reflected in a gradual lowering of quotations throughout steel and steel products generally.

Due to active trading in raw cotton, a firm undertone has developed in the cotton waste markets. The boiler tube business shows signs of reviving, sales being slightly more numerous, and the increase in inquiries denoting more seasonable interest. Prevailing quotations on range boilers remain unchanged, and it is now inferred that the existing levels may hold for some time. The radiator business is recorded as good, while a steady volume of sales is also given on soil pipe and fittings.

former months. This would indicate that prices are now fairly well down to bottom when present day productive costs are considered, and prices now quoted leave little profit for producers at the mills. The present reduction is, according to one local dealer, the result of the again unsteady situation at the mills where another series of price-cutting is in evidence, and he is of the opinion that any further recessions will be the outcome of the continuation of this price shading. Further marked reductions are improbable because the producers of pig iron claim they are placing their output at little or no profit. Freight rates are also one of the chief factors in steel production and if these are lowered, as anticipated, the question next arises: Will the producers of pig iron still be willing to sell at to-day's prices in the case of any developments here, or will they then demand increased figures covering the amount of freight reduction? This is just one phase that would indicate a steady market insofar as the mills are concerned, and taken altogether there seems little chance of any drastic price changes until the cost of production is lowered.

A more hopeful outlook is now felt locally among the iron and steel jobbers, and a fair amount of Fall business is anticipated. More enquiries are made, and each week brings with it reason for a fairly optimistic viewpoint for the remaining months of the year. Following are revised quotations:

Common bar iron, 100 lbs.	3 25
Refined iron	4 00
Iron finish machinery steel	3 45
Mild steel	3 40
Single reeled machinery steel	5 25
Band steel	3 40
Spring steel	6 00
Sleighshoe steel	3 40
Tire steel	3 60
Toe calk steel	4 30
Harrow tooth steel	3 55
Mining tooth steel, per lb.	0 23

Continued from Page 45] 8

Black Diamond tool and cast steel, lb. 0 23
 NOTE.—Refined iron is approximately \$1.50
 per 100 pounds over base, but fluctuates
 owing to unsettled market.
 Band steel in scroll bundles, 50c per 100 lbs.
 extra.
 Flats, iron and steel, 3-16 and thinner, 50c
 per 100 lbs. extra.

CLOSET SEAT HINGES \$2.40 DOZEN Montreal.

A reduction has been made in the
 price of closet seat hinges, and they
 are now quoted at \$2.40 a dozen.

A BETTER TONE IN LEAD PRODUCTS

Montreal.

With quotations on solders and other
 lines of lead products holding at de-
 clines in prices of two weeks ago, prices
 are now stated to be at a level that
 warrants no further reduction until la-
 bor and freight rates show a reduction.
 The recent declines have been in sym-
 pathy with the metals on the primary
 markets, which in practically all in-
 stances have been very weak with little
 interest shown. These are now at very
 low quotations and below pre-war levels
 on some metals-chief in the manufacture
 of the finished products. The tone of
 these metals is reported as having im-
 proved somewhat in the past week and
 the betterment looked for has indica-
 tions of developing. If so, it will in all
 probability reflect immediately on the
 finished market, and this is the chief
 reason why manufacturers anticipate a
 steady market, and firm enough to with-
 stand the easier tones which have arisen
 through a lack of demand. Following
 are the unchanged quotations:

Lead pipe, per 100 lbs. 12 50
 Lead waste, per 100 lbs. 13 50
 of 10%.

NOTE.—Lead pipe is subject to a discount
 Lead traps and bends 10% off.
 Lead wool, lb. 0 13½
 Lead sheets, 2½ lbs. 0 10½
 Lead sheets, 3 to 3½ lbs. sq. ft. lb. 0 10¼
 Do., 4 to 8 lbs. sq. ft. 0 09½
 Cut sheets, ¼c lb. extra and cut sheets to
 size ¾c lb. extra.
 Solder, guaranteed, lb. 0 25½
 Do., strictly, lb. 0 23½
 Do., commercial, lb. 0 20½
 Do., wiping, lb., 0 21½
 Do., wire, lb. 0 35
 Zinc, sheets, casks 0 11½
 Do., broken lots 0 12

NEW DISCOUNTS ON SOIL PIPE. Montreal.

Through the increasing of discounts
 on both soil pipe and fittings, lower
 prices are effective. The 2 and 3 inch
 pipe now sells at less 35 per cent., and 4,
 5 and 6 inch less 40 per cent. The 8
 inch pipe and fittings remain at net
 prices while from 2 to 6 inch fittings
 are changed to 50 per cent. off list
 prices. Following are the new quota-
 tions:

SOIL PIPE—
 2 and 3 inch 35%
 4 inch 40%
 5 and 6 inch 40%
 8 inch Net
 FITTINGS—
 2 to 6 inch 50%
 8 inch Net

MALLEABLE FITTING PRICES ARE INCREASED.

Montreal.

A revision has been made in the
 prices of malleable fittings in the nature
 of an advance. Malleable bushings and
 plugs are now quoted at 25 per cent.
 off list, formerly selling at less 30 per
 cent. In the pound goods, prices on

the three classes all show an advance
 and are now quoted net where former-
 ly the 10 per cent. was added. There
 is a steady volume of business being
 done in fittings, the varied kinds mov-
 ing in small but numerous orders. Fol-
 lowing are new prices and discounts:

PIPE FITTINGS—

Cast iron fittings	20%
Plugs, cast iron	27½%
Do., solid	10%
Do., countersunk	net
Bushings	25%
Unions, ¼ in. to 2 in.	40%
Do., 8 in., 2½ to 4 in.	40%
Flanged Unions	20%
Dart Unions, blk. ¼ to 2 in.	29%
Do., ½ in., 2½ to 4 in.	14%
Do., galvd., add to black	30%
Nipples, blk., and galvd., ½ to 4 in. close and short	45%
Do., 4½ in. and larger	35%
Do., long, ½ in. to 4 in.	65%
Do., 4½ in. and larger	45%
Do., running thread	25%
Couplings, 4 in. and under	25%

MALLEABLE FITTINGS—

	Black Galvanized
Class A	0 58 0 72
Class B	0 24 0 34
Class C	0 16 0 24

RANGE BOILERS A LITTLE STEADIER.

Montreal.

It now seems altogether likely that
 range boilers will settle down with the
 \$7.50 quotation on the 30 gallon
 standard boiler, notwithstanding \$8.75
 was the price accompanying other quo-
 tations on the list which are unchanged
 and experiencing a fairly steady mar-
 ket. The lower price on the 30 gallon
 size was first given through the result
 of price shading, while other manufac-
 turers and jobbers maintained the high-
 er price, but \$7.50 is now general, seem-
 ingly having supplanted the former high-
 er quotation. Limited sales are made,
 although a slight improvement is not-
 ed in the past two weeks. Following
 are net prices on the various sizes:

	Black Galv.	Standard	Ex.-heavy
30 gallon	7 50	11 25	11 25
35 gallon	11 25		
40 gallon	13 50	16 00	
52 gallon	20 00		
66 gallon	28 00		
82 gallon	35 00		
100 gallon	45 00		
120 gallon	54 00		

NO INTEREST IN SCRAP MARKET Montreal.

Although the prices on scrap metals
 are at a low level in general, they have
 failed to locate any increased activities.
 Dealers were satisfied that further re-
 ductions would not act as a stimulus,
 and business conditions in general will
 have to improve before much interest
 will be taken in waste materials. It is
 noticed that a little more hopeful tone
 is prevailing in the iron and steel mar-
 kets, but whether this will reflect on
 the scrap end is held in doubt at present,
 although this should bring about an
 improvement. Nominal quotations are
 the following.

Waste Materials

Automobile tires	0.75
Rubber shoes	0.02½
Yellow brass	0.05
Red brass	0.08½
Light brass	0.04
Scrap zinc	0.03 to 0.03½
Lead, heavy	0.04
Lead, tea	0.02½

Light copper	0.07½
Heavy copper	0.10½
Wrought iron, R. Rd. No. 1 per gr. ton	10.50
Malleable scrap (ton)	10.50
Pipe scrap (ton)	7.00
Heavy melting steel	7.50 to 8.00
No. 2 busheling	4.00
Boiler plate	8.00
No. 1 machinery cast	20.00

FAIR SALES OF VALVES AND BIBBS Montreal.

Current sales in the various lines of
 compression goods are fair, with no
 change made in the discount. Valves
 and bibbs have enjoyed a fair amount
 of business all through the summer
 months although orders were strictly of
 a sorting nature. With the approach
 of the later months of this year a good
 volume of business should continue,
 with prices expected to show little
 change. Present discounts are the fol-
 lowing:

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, stan- dard	40%
Roundway stop and waste cocks, stan- dard	37%
Brass steam cocks, standard	10%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, stan- dard	20%
Gate or straightway	16-18%
Jenkins Globe	10-16%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%

MORE ENQUIRIES FOR BOILER TUBES.

Montreal.

With quotations on the various sizes
 of both seamless and lapweld boiler
 tubes remaining at previous levels, little
 change can be reported in the move-
 ment. As in other lines of the heavier
 iron and steel products, boiler tubes
 have recorded slow sales during the
 summer months, and the demand has
 only been for small work and repairs.
 A little brighter outlook now comes to
 light however, with an increased num-
 ber of inquiries coming to hand, but
 whether these will develop into sales re-
 mains to be seen. Unchanged quota-
 tions are following:

Boiler Tubes—	Seamless	Lapweld
1 inch	25.00	
1¼ inch	26.00	
1½ inch	25.00	
1¾ inch	28.25	27.00
2 inch	27.80	23.00
2¼ inch	31.35	26.00
2½ inch	39.65	28.00
3 inch	46.80	33.00
3½ inch	60.35	41.00
4 inch	81.00	51.75

CORRUGATED SHEETS REMAIN AT DECLINE.

Montreal.

List prices and discounts on corruga-
 ted sheet head remain at the decline of
 a few weeks ago. The present prices
 are considered reasonably low, but with
 a rather unsettled feeling among the
 jobbing circles locally, the outcome
 might take the form of even lower prices
 in the hope of stabilizing the market,
 while on the other hand present quo-
 tations are well down to the galvanized
 sheet prices and a steadier market is
 looked for on these. List prices and
 discounts are as follows:

Continued on Page 48

Made in Canada for Canadians

At the Sarnia factory **MUELLER** is now producing a complete line of Water, Plumbing and Gas Brass Goods of tested quality and proved efficiency — at exceedingly interesting prices.

To meet the requirements of the Canadian market **MUELLER** now offers the latest improved construction in Flush Valves No. A-3375.

MUELLER Imperial Flush Valves

are fully warranted to stand every reasonable test—are impervious to corrosion—have the well known **MUELLER** precision of manufacture—and can be depended upon to give absolute and lasting satisfaction.

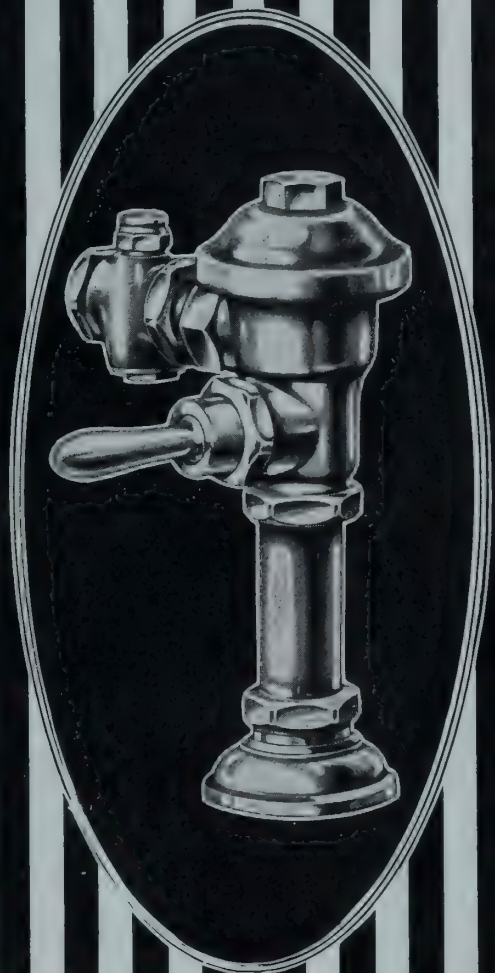
The lever moves with the slightest touch—but cannot be held open to waste water. Specify No. A-3375 when ordering, or write for description and prices. Mail orders given prompt attention.

H. Mueller Mfg. Co., Limited,
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Water, Plumbing and Gas Brass Goods
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Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip"
Brass Rod; Brass and Copper Tubing; Forgings and Castings
in Brass, Bronze and Aluminum; Die Castings in White Metal
and Aluminum; also Screw Machined Products.



Continued from Page 46

Corrugated Sheets

	Per 100 sq. ft.
No. 28 gauge	7 75
No. 26 gauge	8 25
No. 24 gauge	11 50
No. 22 gauge	14 00
No. 20 gauge	15 75
No. 18 gauge	21 00

Less 7½ p.c.
Lighter than 24 gauge and wider than 27
inch 75c a square extra.

**LOWER PRICES ON STOVE PIPES.
Montreal.**

New lower prices are given on the locked stove pipes, the reduction covering both the 6 inch and 7 inch pipes. The 6 inch is now quoted at \$14.00 per 100, 7 inch \$15.00 per hundred.

**ENAMELLED WARE DISCOUNT
CHANGED.****Montreal.**

Local conditions surrounding enamelled ware is gradually showing improvement, and the market is a little more stabilized insofar as the jobbers and distributors' resale prices are concerned. As a result the discount is returned to 20 and 10 per cent. off list, bringing the net price a little higher than was previously quoted.

This will be welcomed by dealers, as former prices left no profits for them and while the market still leaves room for further improvement this is a step in the right direction. Following are list prices with the new discount:

Closet, standard outfit	26.00
Do., with post hinge seat	26.75
Do., white vitro, vitreous china or enamelled iron, with wash-down bowl and oak or mahogany post hinge seat	29.75
Do., add for reversible trap bowl	1.25
Do., add for siphon jet bowl	7.00
Do., for ¾ in. valve on supply pipe	1.50
Do., deduct for supply pipe	0.80
Do., deduct for floor flange	0.60
Do., wash down bowl, less spud	11.50
Do., reversible trap bowl, less spud	12.75
Do., siphon jet bowl, less spud	19.00
Do., "Richelieu" bowl	10.50
Do., extra for spud	0.60
Do., oak, or oak-vitro tank, with fittings less seat	16.50
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4.75
Do., add for bar hinge	0.25
Do., white vitro, vitreous china, or enamelled iron tank, with fittings, flush elbow and supplies, less seat	18.50

SOME SHEETS AGAIN LOWERED IN PRICE.**Montreal.**

As in the case of other steel products, the sheet market has now taken on a little more hopeful aspect. It was anticipated that Fall would bring more activity, and this has been realized to a degree, through the receipt of more enquiries. A noticeable increase in shipments of sheets to merchants for furnace and stove pipe work has been evident in the past two weeks, although sales are not yet up to normal. This is accounted for however in dealers not placing their orders beforehand for their fall and early winter requirements. There is room for a great improvement but the situation is becoming more encouraging from a sales point of view.

A revision to lower levels has been made in the prices of all sheets with the exception of Terne plates and Welsh Canada plates. Black sheets show an approximate reduction of 60 cents per 100 pounds, U.S. standard galvanized sheets from 40 to 50 cents while the English standard have a decline of 50 cents on all gauges. Bright tin plates are also slightly reduced. Following are the revised prices:

BLACK SHEETS—

10 gauge	4 40	4 65
12 gauge	4 50	4 75
14 gauge	4 60	4 85
16 gauge	4 70	4 95
18-20 gauge	4 95	5 20
22-24 gauge	5 10	5 35
26 gauge	5 15	5 40
28 gauge	5 25	5 50
Sheets 36 in. wide, 20c per 100 lbs. extra.		

GALVANIZED SHEETS—**U. S. Standard—**

10½ oz.	7 25	7 75
28 gauge	6 85	7 35
26 gauge	6 45	7 00
22-24 gauge	6 25	6 75
20 gauge	6 10	6 60
18 gauge	6 00	6 50
16 gauge	6 00	6 50
14 gauge	6 00	6 50
12 gauge	6 00	6 50
10 gauge	6 00	6 50

ENGLISH STANDARD—

	Queen's Head	Fleur-de-lis
28 gauge	8 50	7 75
26 gauge	8 25	7 50
24 gauge	7 65	7 10
22 gauge	7 30	6 65
18-20	6 60	6 50

NOTE—These prices are for full bundles. An extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50c per 100 lbs. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz., 25c per 100 lbs.

BRIGHT TIN PLATES—

	Box
20x28x100 lb. basis	\$17 75
20x28 1C, 112s	18 25
20x28 1X, 112s	20 25
20x28 1XX, 56s	11 50
20x28 1XXX, 56s	12 25

TERNE PLATES—

20x28 1C, 112s	17 50
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CANADA PLATES—(Dull)—

18x24x52s	5 80
18x24x60s	6 00
18x24x75s	6 30

WELSH CANADA PLATES—

	Polished—
18x24x52s	8 25
18x24x60s	8 50

CLOSET PRICES UNCHANGED.**Montreal.**

Closet prices continue unchanged, with sales showing a slight improvement, building construction now demanding supplies. With increased activities, prices should hold fairly firm as closets are now selling at reasonable low figures and the last reduction is said to have been made in the hope of bringing about an increased volume of business. While there is no definite indication of revisions either way at present following are present quotations:

Sinks, roll rim—

18x30 in.	23 00
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Sinks, flat rim—

	1 only	2 only	3 only
16x24	\$ 7 50	\$ 7 40	\$ 7 30
18x30	8 70	8 60	8 50
20x30	9 90	9 80	9 70

Bath Tubs, roll rim—

4, 4½, 5 feet, 24 to 30 in. wide	51 40
5½ feet	57 10

Lavatories—

17x19" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
17x19" Roll Rim, F241 or P4345	12 60
Less 20-10%.	

IRREGULAR SALES OF RADIATORS**Montreal.**

The movement of radiators and boilers is said to be of a spasmodic nature, and in the past two weeks sales are not as large as the few weeks' previous. This falling off is however only considered temporary and a fair amount of Fall business is anticipated, as a good amount of construction work now under way will still require supplies before the cold weather sets in. Prices and discounts remain unchanged as follows:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot. 45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53 per cent for hot water and 54 per cent. for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50 per cent.

Boilers—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 60 per cent. off list.

Square or sectional hot water or steam boilers, 15 in., 10 per cent.

For Ontario Government trimmings, 5 per cent.

Square or sectional water boilers 19-in to 36 in., 10 per cent. off list.

Square or sectional steam boilers, 19 in. to 36 in., 10 per cent. Ontario Government trimmings, 5 per cent.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b., Toronto, Montreal, Guelph, Hamilton, St. Catharines or Bramford.

WASTE PRICES HOLD.**Montreal.**

A steady market seems to have settled on cotton wastes, prices having continued without change since early in July, and with very little indication at present of further revision, notwithstanding other lines of cotton goods have undergone price declines. A steady volume of business continues, and although not as heavy as in past years, it is said to be quite satisfactory. Unchanged quotations are as follows:

COTTON WASTE

Cream polishing	0.20
White.	
XXX	0.17
XX	0.16
X	0.15
XLCR	0.15
X Empire	0.14
X Press	0.13
6 XSpecial	0.12

Colored.

Fancy	0.14
Lion	0.12½
Popular	0.10
Keen	0.09

Wool Packing

Arrow	0.30
Axle	0.25
Anvil	0.20

Dominion Wipers, Washed and Sterilized
White Cotton 0.22
Colored Cotton 0.16

Above lines subject to trade discount for quantity.

NO CHANGE IN WROUGHT PIPE.**Montreal.**

The July revision in the quotations on wrought iron and steel pipe still holds list No. 52 being the selling basis. Jobbing houses report the movement of piping as irregular, but quite satisfactory. Outside dealers' stocks have been kept at the low ebb during the summer months and the buying has been purely of a sorting character, but with the approach of the fall months a fairly steady movement should be experienced. There is no indication of the approach of a further revision at present, which is quite different from conditions earlier in the year when new lists were issued quite regularly. Following is list No. 52.

EAVESTROUGH PRICES REDUCED.**Montreal.**

Eavestrough and conductor pipe will now cost less, a reduction having been made in both lines last week. The discount off list prices on both the trough and pipe is now 60 and 10 per cent., the extra 10 per cent. having been added. Conductor elbows remain unchanged at the discount of 55 per cent. off list. A temporary falling off in sales

Continued on Page 50

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity 6000 Tons.

Quality Products Prompt Service

MI Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

Cast Iron Fittings stamped with our trade-mark mean fittings made with iron of high tensile strength,—proper proportions, and correct tappings.

Malleable Fittings of our brand mean fittings made of Air Furnace Refined Iron, reamed, and tapped to gauge, with perfect threads. We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Representatives.

Halifax—Geo. D. Hatfield, Bedford Chambers.

St. John, N.B.—H. G. Rogers, 147 Prince William St.

Winnipeg—Harry F. Moulden, Confederation Life Building

Vancouver, B.C.—Cyril Ames, Wilton Block.

Montreal and Toronto—From Head Office, Guelph, Ont.

International
Malleable Iron Company, Limited
Guelph, Ontario, Canada

Continued from Page 48

has been noted in the past two weeks, but this is only considered temporary and the fall months will in all probability contribute to a fair amount of business as the laying of trough in the outside centres is usually carried on to a fair extent until the cold weather sets in. Following are the list prices with the discounts:

EAVESTROUGH—

O. G. Square Bead—		per 100 ft.	
8 in.	15 90	15 in.	28 80
10 in.	17 70	18 in.	36 80
12 in.	21 20		

O. G. Round, and Half Round—

8 in.	16 90	15 in.	29 80
10 in.	18 70	18 in.	37 80
12 in.	22 20		

Discount 60-10% off list.

CONDUCTOR PIPE—

		per 100 ft.	
2 in.			18 40
3 in.			22 30
4 in.			29 60
5 in.			40 00
6 in.			49 00

Discount 60-10% off.

CONDUCTOR ELBOWS—

Plain round or round corrugated.			
2 inch			5 25
3 inch			6 00
4 inch			10 50
5 inch			24 00
6 inch			29 00

Discount 55% off.

INGOTS DISPLAY FIRMER TENDENCIES.**Montreal.**

Ingot metals in general are firmer with advances in prices in some instances, while on others a much more hopeful outlook is promised. The metals in the ingot stage have been in a listless state for some time past, with little interest shown, therefore the improvement is welcome.

TIN.—London advanced quite sharply in the earlier part of the week and

the market at present looks strong, although whether this will continue is uncertain at the moment. The tin plate situation appears to be somewhat better which should result, to a degree, in larger consumption of the ingot metal. Quotation advanced to 35 cents.

COPPER.—The tone of this metal is better both in New York and London and producers are firmer in their ideas. It is not easy to buy for forward delivery as sellers are asking a higher premium. Local market is somewhat firmer at 17½ cents for electro, 17 cts. for casting.

LEAD.—This metal is rather firm at present, especially in London where higher prices are expected. The American market is also firmer and prices advanced 10 points since last week. It is reported however that one of the largest smelters in Australia is resuming operations on a somewhat lessened scale which may tend to keep the market down. Local price 6½ cents.

SPELTER.—There is little change in the American situation although it is now impossible to buy under \$4.20 for spot and \$4.30 for last quarter. The English market is firmer but considerable uncertainty still exists over the situation in Germany. Price is unchanged at 7¼ cents.

ANTIMONY.—There is a firmer tone to the market as far as offerings from China are concerned, but little change in the situation either locally or in New York. Chinese is offered at 7½ cents, high grade English 8½ cents.

ALUMINUM.—Aluminum is the only metal that fails to show an improvement and the market remains dull and unchanged. Quotation continues at 30 cents.

TORONTO MARKETS

TORONTO, September 7.—Many important items among plumbing and steam-fitting supplies, now register further revision in prices.

Lower quotations are given on standard Globe, Angle and Check valves, also on standard round way stop and waste cocks. Class A malleable pipe fittings are reduced in price, both black and galvanized. Stove pipe prices are lowered on the 6 and 7 inch sizes, while revised discounts are also given on eavestrough and conductor pipe, which change means lower prices for the fall period where these products are required. Lower ranges have developed in the various local quotations on bar iron and steel, and easier price levels are also noted on sheets and plates, an average reduction of fifty cents being shown.

Revised discounts on certain makes of files bring prices on these tools to a reduced scale, and a similar change is recorded on Irwin auger and car bits. Further price lowerings are now shown in the waste material markets, while lack of active interest in ingot metals is still apparent. On the other hand, the cotton waste markets are firmer; with the boiler tube business entering on the stage where revival is looked for, as sales are more numerous and inquiries denote more seasonable interest. Electric ranges are proving popular this season, and a slight increase is reported in the fall movement of stoves and furnaces. There is a steady volume of sales for soil pipe and fittings, with a fair trade noted in corrugated sheets. A better movement is recorded in brass and copper goods, while the current pipe demand is considered fair, with list No. 52 still in effect.

REVISED DISCOUNTS ON FILES**Toronto.**

Revised discounts are now shown on various makes of files, which change brings prices on these products to a lower basis. The new quotations are enumerated on the current market pages.

STOVE PIPE PRICES LOWERED**Toronto.**

Reduced prices are announced on stove pipes. The new quotations on the 6-inch size is given as \$14.00 per hundred, and the price of the 7-inch pipe is now \$15.00.

IRWIN BIT PRICES AGAIN LOWER Toronto.

The discounts on Irwin car and auger bits have again been revised, thus making easier quotations on these products. Irwin auger bits are now quoted at list plus 5 per cent., and car bits are shown at 5 per cent. off.

COTTON WASTE MARKETS FIRMER Toronto.

Dealers report that the tone of the cotton markets has recently shown some improvement, and this situation has reflected in a firming up on waste prices. The quotations on both white and colored cotton wastes, which recently came into effect, are being well maintained, no further price revisions having been recorded. It is stated that few, if any, changes are now expected, as market conditions are generally reported fair, with some signs of a more optimistic attitude developing in the trade. The unchanged quotations follow:

WASTE—

	per lb.
Cream, polishing	0 19½ 0 20
White, cotton.	
XXX	0 18½
XX	0 16½
X	0 15½
Xc	0 14½
XXX Extra	0 17
XX Grade	0 16
NLCR	0 15
X Empire	0 14
X Press	0 13
Colored, Cotton.	
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 10
No. 1	0 13½
Keen	0 09
No. 7	0 12½
No. 1A	0 11½
No. 1B	0 10½

Above lines subject to trade discount for quantity.

QUOTATIONS ON MALLEABLE FITTINGS SHOW SLIGHT CHANGE**Toronto.**

Class A. malleable pipe fittings, both black and galvanized are reduced in price this week. A 2-cent reduction is announced on black, with a decline of 3 cents in the quotation on galvanized. No revision has been made on B and C class fittings. Recent changes in the discounts on wrought iron nipples and couplings are still maintained, and following are the current prices:

PIPE FITTINGS—		
Cast iron fittings		20%
Plugs, cast iron		27½%
Do., solid		10%
Do., countersunk		net
Bushings		30%
Unions, ¼ in. to 2 in.		40%
Do., 8 in., 2½ to 4 in.		35%
Flanged Unions		20%
Dart Unions, blk., ¼ to 2 in.		29%
Do., ¼ in., 2½ to 4 in.		14%
Do., galvd., add to black		30%
Nipples, blk., and galvd. ½ to 4 in.		
close and short		45%
Do., ½ in. and larger		35%
Do., long, ½ in. to 4 in.		55%
Do., ½ in. and larger		45%
Do., running thread		25%
Couplings, 4 in. and under		25%

MALLEABLE FITTINGS—

	Black Galvanized	
Class A	0 58	0 72
Class B	0 24	0 34
Class C	0 16	0 24

ELECTRIC RANGES POPULAR**Toronto.**

Manufacturers and distributors of electric ranges report that there is a

Continued on Page 52



Why Not

install lighter and more efficient

Radiation ?

Victory Radiators

(a)

An improvement in engineering and design.

The Victory Radiator is made with two flat, hollow castings, one for the top and the other for the bottom, with tubes inserted in them. One tube is within the other. In this way, water is caused to circulate through the

(b)

headers and between the two tubes. This is a series of double tubes; 8 in the smallest castings, up to 54 in the larger ones. This adds the outside surface radiation of the larger tube, and the inside surface radiation of the smaller tube, to that of the top and bottom headers.

(c)

Save On

Coal, Shipping and Handling Weight, Cost of Installation and Fittings. Further investigation proves them still more efficient. Steel tubing is thinner and gives better radiation. The air circulation is better. The radiators occupy a minimum of space. They are artistic in appearance.

Since there is only $\frac{1}{8}$ as much water in Victory Radiators, it is quickly heated, and stimulates circulation of the water, making radiators hotter and radiating more heat. A smaller furnace can be used to heat the lesser quantity of water. Write for the remainder of the advantages.

Montreal General Tool Co., Ltd.

12419 Notre Dame St. East - Montreal

Continued from Page 50

decided increase in the popularity of this type of kitchen range. This movement generally applies to all sizes, from the smaller electric stove for kitchenettes, to the larger complete ranges for family use.

LOWER RANGE IN QUOTATIONS ON SHEETS AND PLATES

Toronto.

Easier prices all through the list on sheets and plates are noticeable this week. The extent of the decline varies on the different grades, being around 25 cents lower on blue annealed; with a fifty cent drop in prices on black and English galvanized; to the general revision in quotations on the Premier and Apollo grades.

The wide differential between the prices quoted by various dealers is again very evident, the lower quotations being announced in some cases, while others maintain prices at the higher levels shown. The following table therefore is an average list of the figures appearing on the local markets, and in most cases for fairly large purchases.

BLUE ANNEALED—

10 gauge, base	4 50
12 gauge	4 55
14 gauge	4 60
16 gauge	4 65

BLACK—

18-20 gauge	4 80	5 30
22-24 gauge	4 85	5 35
26 gauge	4 90	5 40
28 gauge	5 00	5 50

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 36 in. wide.

GALVANIZED—

	Queen's Head	Fleur-de-lis.
10 gauge	9 50	8 75
26 gauge	9 25	8 50
24 gauge	8 65	8 10
22 gauge	8 30	7 65
18 and 20 gauge	7 60	7 50

Premier and Apollo.

10% oz.	7 00	8 00
U.S. 28, base	6 60	7 60
U.S. 26	6 30	7 30
22 and 24	6 15	7 15
18 and 20	6 00	7 00
16	5 85	6 85
12 and 14	5 70	6 70

An extra 40c per 100 lbs. is charged for Keystone brand copper-bearing sheets.

An extra is now charged on galvanized sheets, 10% oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

PLATES, CANADA—

Prices, nominal.	Toronto
Dull, 80 sheets	8 25
Ordinary, 52 sheets	8 00

PLATES, COKE, TIN—

Prices, nominal.	Per Box
IX. 20 x 28, 112 sheets	20 59
Do., 56 sheets	12 00

PLATES, CHARCOAL, TIN—

IC. 14 x 20 base	15 00
IX. do.	17 00
IXX. do.	19 00

PLATES, TERNE—

Prices nominal.	
IC. 20 x 28, 112 sheets	17 50
F.O.B., Toronto.	

FURTHER REDUCTIONS SHOWN IN WASTE MATERIAL PRICES

Toronto.

A number of price reductions are again apparent in the waste material markets this week. Iron and steel scrap quotations have shown a downward trend, while quotations on copper and brass grades are similarly lowered. Prices on heavy lead and scrap zinc are also easier, and the lack of outlet for

boots and shoes and scrap rubber, has been reflected in further price reductions.

Following are the average of dealers' nominal buying prices for large quantities:

WASTE MATERIALS—

WASTE MATERIALS—		
No. 2 busheling .....	.....	11 00
Heavy melting steel, gross ton	9 50	11 00
R. Rd. wrought iron, No. 1, gr. ton	10 25	11 25
Scrap pipe, gr. ton	6 00	7 00
Stove plate, net ton	11 00	12 00
No. 1 machinery cast, net ton	15 00	16 00
Heavy lead	3 75	4 00
Tea lead	2 00	2 50
Red brass .....	.....	9 00
Yellow Brass	5 25	6 25
Light brass	3 00	3 50
Heavy copper	9 25	10 00
Scrap zinc	3 00	3 50
Old rubbers, boots and shoes	2 00	2 50
Lumberman's rubber boots	1 25	1 75
Auto tires	0 50	1 00
Solid tires	0 75	1 00

LOWER QUOTATIONS ON GLOBE, ANGLE AND CHECK VALVES

Toronto.

Further revisions in discounts have now been announced on certain classes of compression work. Substantial reduction in quotations are given on standard globe, angle and check valves, while other price changes are also shown on roundaway stop and waste cocks, standard, and on J. M. T. gate valves.

VALVES—

Compression work, standard	37%
Fuller work, standard	30%
Bath cocks, compression	29 1/2%
Do., Fuller	25%
Flatway stop and wastecoaks, stand'd	40%
Roundaway stop and waste cocks, standard	40%
Brass steam cocks, standard	10%
Globe, angle and check valves, stand'd	20%
J. M. T. valves	20%
J. M. T. C.	25%
J. M. T. Gate Valves	25%
Gate or straightway	16-10%
Jenkins Globe	10-10%
Radiator valves, standard	58%
Do., removable disc	58%
Emco, J. D. valves	20%
Emco Check Valves	20%
Webber Gate Valves	20%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Quick opening No. 3633	37%

EASIER PRICES ON IRON AND STEEL

Toronto.

Lower ranges in the various local quotations are now recorded. This trend toward price reduction is a reflection of the recent changes in the primary steel markets, and is also attributed in some quarters to the habit of making the quotation to suit the prospective order. The bar iron base is now 25 cents lower in some instances, and similar conditions prevail in the current prices on hoop steel. Cast tool steel, medium, also shows a reduction of 1 1/2 cents per lb. The variation between the prices quoted by the different dealers is still noticeable, which has been the case since the unsettlement and depression in the steel industry became evident. Following are the revised quotations:

IRON AND STEEL—

Mild steel bars, base	3 25	3 50
Mild steel bands, 3-16 in. base	3 75	4 00
Bar iron, base	3 25	3 50
Angle iron, base	3 35	3 60
Horseshoe iron	4 10	
Tire steel	4 70	5 95
Spring steel	9 50	11 50
Crucible cast sheet steel	30 00	35 00
Mining drill steel	20 00	23 00
Cast tool steel, medium	18 50	
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	4 10	4 50
Norway iron	15 00	
Toe caulk iron	5 40	6 40
Hoop steel	4 50	4 75

REVISE DISCOUNTS ON EAVES-TROUGH AND CONDUCTOR PIPE

Toronto.

Prices on eavestrough, ridge roll and valley, and also on conductor pipe have been lowered, through the addition of another 10 per cent. to the discount quotations. The price on conductor elbows remains unchanged at 55 per cent. off list.

The current movement of these products is still characterized as fair by local distributors, and a slight improvement in the total volume of sales is looked for in some quarters during the fall period. Following are the revised quotations:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 60-10 per cent.	

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	26 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths, list	49 00
Less 60-10 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

BOILER TUBE BUSINESS REVIVING

Toronto.

With the boiler tube season now actually at hand, business in these products is reported to be picking up. Especially during the past week have sales been slightly more numerous, and distributors take this factor as an indication of the trend towards future seasonable activity. No revisions in quotations on boiler tubes:

BOILER TUBES—

	Seamless.	Lapweld.
1 inch	26 00	
1 1/4 inch	27 25	
1 1/2 inch	26 25	
1 3/4 inch	29 75	25 00
2 inch	29 00	22 00
2 1/4 inch	32 00	25 00
2 1/2 inch	40 00	27 00
3 inch	44 00	35 00
3 1/2 inch	60 00	40 00
4 inch	75 00	50 25

SOLDER: REVISIONS MAINTAINED

Toronto.

Prices on lead and zinc goods remain unchanged this week with the recent revisions in solder quotations being well maintained. No marked change has been recorded in market conditions, with a fair movement in these products reported for this season of the year. Following are current quotations:

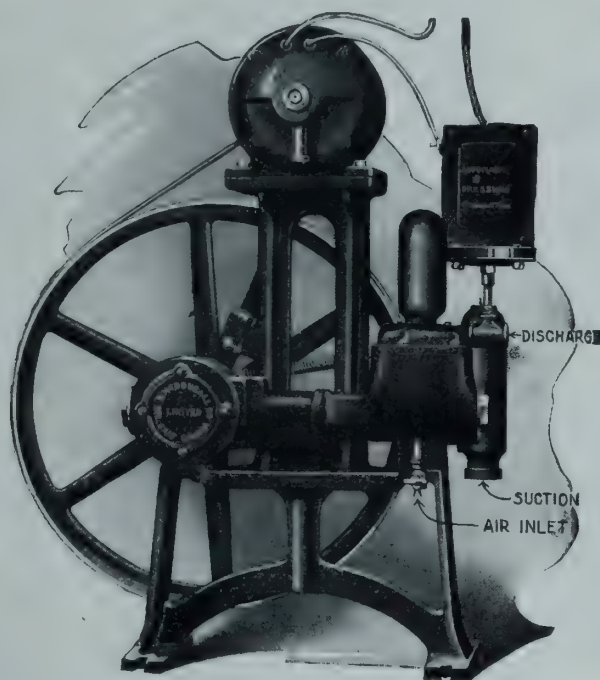
LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	\$ 0 12 1/2
Lead, waste pipe, list, per lb.	0 18 1/2
Do., over 8 in., list, per lb.	0 14 1/2
Lead pipe is subject to a discount of 10%.	
Lead traps and bends, 10%	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb.	0 09 1/2
Cut sheets, 1/2 c to 3/4 c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 20
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

Continued on Page 51

McDougall House Service Pumps

A New Canadian Line



McDougalls have again been the pionéers in developing a new line which will no doubt be much appreciated by the trade. Since Hydro power is being more widely used all over Ontario it was necessary that a complete pumping outfit be made in Canada as is shown by the above cut. We are in a position to supply pneumatic tanks and fittings so that you may order all the necessary equipment from one source to complete a pumping job that we guarantee will equal any similar article on the market.

Enquiries for prices and further particulars will be given prompt attention.

The R. McDougall Co., Limited
GALT, CANADA

Continued from Page 52

STEADY VOLUME OF SALES FOR SOIL PIPE AND FITTINGS**Toronto.**

A fairly steady volume of sales for soil pipe and fittings is generally reported and while the market situation is not yet normal, a much healthier tone is recorded than at this time last season. Prices are being well maintained, and little revision is looked for by local manufacturers and distributors of these products. Following are current quotations:

SOIL PIPE—

2 and 3 inch	25%
4 inch	30%
5 and 6 inch	30%
8 inch	net

FITTINGS—

2 to 6 inch fittings	40-10%
8 inch fittings	net

RADIATOR BUSINESS IS GOOD**Toronto.**

"Business is good" is the current report received from dealers in radiators and boilers. Construction activity has now reached that stage where the various buildings are practically ready for the installation of radiators, and coupled with this situation is the steady increase in the volume of homes and other structures being erected during the fall period. No change in price is evident, the revised discounts of a few weeks ago still being maintained. Following are current quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot. 38 in. \$1; 32 in. \$1.10; 30 in. \$1.15; 26 in. \$1.20; 23 in. \$1.26; 22 in. \$1.30; 20 in. \$1.36; 18 in. \$1.40; 16 in. \$1.50; 14 in. \$1.55; 13 in. \$1.60.

Discounts on 2, 3, 4, and 5-column standard sizes, 53 per cent. for water and 54 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent. for water and 49 per cent. for steam.

Discounts on 1-column hospital size water 30 per cent.; steam 31 per cent.

Wall Radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water:	
Round	60% off list
Square	10% off list
Steam:	
Round	15% off list
Square	5% off list

FAIR VOLUME OF TRADE IN CORRUGATED SHEETS**Toronto.**

No marked change is reported on corrugated sheets, both prices and market conditions holding at previous levels. Current business is stated as just fair, but with the fall season and the recent easier price levels, an average volume of trade is generally looked for. Unchanged quotations follow:

	Per 100 sq. ft.
No. 28 gauge	\$ 7 55
No. 26 gauge	8 25
No. 24 gauge	11 50
No. 22 gauge	14 00
No. 20 gauge	15 75
No. 18 gauge	21 00
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

FAIR VOLUME OF SALES IN CLOSET OUTFITS**Toronto.**

A seasonable volume of sales for closet fixtures and outfits is now generally reported, with dealers quoting current business as fair. A slight improve-

ment was mainly anticipated, chiefly owing to recent price reductions combined with late summer and fall building activity. Quotations are being maintained as follows:

CLOSETS—

Closet, standard outfit oak	\$26 00
Do., with post hinge seat	26 75
Do., mahogany vitro or Pussyfoot with mahogany post hinge seat and cover	29 00
Do., vitreous china with oak or mahogany post hinge seat and cover	29 75
Do., white, vitro or Pussyfoot with mahogany post hinge seat and cover	29 75
Do., white, vitro or Pussyfoot with oak post hinge seat and cover	29 50
Do., enamelled iron tank with oak or mahogany post hinge seat and cover	29 50
Do., add for reversible trap bowl	1 25
Do., add for syphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl less spud	11 57
Do., reversible trap bowl less spud	12 75
Do., syphon jet-bowl less spud	19 00
Do., "Richlieu" bowl	10 50
Do., oak, oak-vitro or pussyfoot tank with fittings less seat	16 50
Do., white, vitro, pussyfoot, vitreous china or enamelled iron tank with fittings, flush elbow and supplies	18 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 40

CURRENT PIPE MOVEMENT CONSIDERED FAIR**Toronto.**

Considering current trade conditions and the present season of the year, the prevailing demand for standard pipe is stated as fair. The irregular movement in piping which has been somewhat apparent throughout the year, is still evident, with dealers being careful in ordering for sorting stocks, and immediate requirements only. Sales in the smaller sizes indicate prevailing activity in house building. List No. 52 follows:

PRICE LIST NO. 52.**STANDARD BUTTWELD PIPE S-C.**

Size—	Steel		Wrot. Iron.	
	Blk.	Galv.	Blk.	Galv.
¼ in.	\$ 6.50	\$8.50	\$ 5.00	\$ 6.00
½ in.	4.56	6.60	5.75	7.80
¾ in.	4.56	6.60	5.76	7.80
1 in.	5.87	7.40	7.65	9.10
1 ¼ in.	7.02	8.97	9.55	11.50
1 ½ in.	10.03	12.92	13.77	16.66
2 in.	13.57	17.48	18.63	22.54
2 ½ in.	16.23	20.90	22.28	26.95
3 in.	21.83	28.12	29.97	36.21
3 ½ in.	34.52	44.46	.....	.....
4 in.	45.14	58.14	.....	.....
4 ½ in.	59.80	75.44	.....	.....
5 in.	70.85	89.38	.....	.....

STANDARD LAPWELD PIPE S-C.

Size—	Steel		Wrot. Iron.	
	Blk.	Galv.	Blk.	Galv.
2 in.	\$25.53	\$31.82	\$33.67	\$39.96
2 ½ in.	38.03	47.97	50.90	60.84
3 in.	49.73	62.72	66.56	79.56
3 ½ in.	60.72	76.36	80.96	96.60
4 in.	71.94	90.47	95.92	114.45
4 ½ in.	81.28	102.87	112	133
5 in.	94.72	119.88	130	155
6 in.	123	156	169	202
7 in.	164	209	221	263
8 in.	173	220	233	275
9 in.	199	253	268	317
10 in.	238	304	321	360
10L in.	221	282	298	352
10 in.	284	363	383	453

QUOTATIONS ON RANGE BOILERS REMAIN UNCHANGED**Toronto.**

No further revision has yet appeared in quotations on range boilers, and the current nominal list is now being generally accepted as likely to hold for some time. This is, however, problematical, for it is noticed that the price of \$9.00

for the 30-gallon standard boiler is looked upon as the prevailing level in some quarters, and quotations lower than that are said to be in the nature of shading in order to induce quantity buying. On the other hand, the price of \$8.50 appeared recently, and the lower level of \$8.25 has been reported. The opinion has been expressed that further price cutting contains no benefit for distributors or manufacturers at the present production costs, and the following are the nominal quotations:

RANGE BOILERS—

	Standard	Ex-heavy
30 gallon	\$ 8 50	\$11 50
35 gallon	9 50	13 50
40 gallon	13 80	16 50
52 gallon	20 40	25 20
66 gallon	28 80	34 80
82 gallon	36 00	47 40
100 gallon	45 60	56 40
120 gallon	55 20	64 80
114 gallon	78 00	93 00

SLIGHT INCREASE NOTED IN FALL STOVE MOVEMENT**Toronto.**

An increase in the number of orders for furnaces is now reported, and while the movement is much later this year, the development of improved sales gives a more optimistic outlook in the trade generally. The arrival of cold evenings has brought about the realization of the needs in this direction, while fall bookings for stoves and furnaces have been encouraged through the recent revision in quotations, and the abolition of the diminishing discount scale.

ENAMELLED WARE QUOTATIONS ARE NOMINALLY UNCHANGED**Toronto.**

With current quotations on enamelled ware remaining nominally unchanged, a slight improvement in the volume of sales is reported in certain quarters. This condition is attributed by dealers as a reflection of the recent late summer building activity, a feature which is also expected to be prevalent during the fall trade period. Prices and discounts are therefore generally unchanged at the following levels:

ENAMELLED WARE—

Enamelled Iron Baths, 3" roll rim	
4 ft. 6 in. 5 ft.	\$ 51 40
Do., 5½ feet	57 10
All Steel Enamel Bath, 4, 4½ or 5 ft. net	16 25
Do., do., 5½ ft. net	17 50
Lavatories—	
17x10" Apron F139 or P40445	15 30
18x24" Apron F154, P3845 or P3847	23 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18x30 in.	23 00
Do., 20x30 in.	24 70
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345 ..	12 60
Sinks, Flat Rim—	
3 only 2 only 1 only	
16x24	\$7 60 \$7 70 \$7 80
18x30	8 50 8 60 8 70
20x30	9 70 9 80 9 90
All above list except lines marked net.	
Discount 20-10 p.c. off these prices.	

REDUCTION IN PRICES ON COPPER AND BRASS**Toronto—**

A fairly substantial reduction in the current prices on copper and brass goods is reported under contemplation by local dealers. The exact extent of the decline, or just what the new prices will be was not available at the time of going to press. It is noted, however, that other markets have recently shown a decrease of around 2 cents per pound on sheets, rods and tubing.

Continued on Page 56

ALLPRISER

Service

Saves You Money

Helps You Make Money

Allpriser Service is constantly in close touch with the market—closer than an individual can keep without neglecting his business.

Allpriser knows the prices; Allpriser notes the variations; Allpriser is right on the job morning, noon and night, ready to keep you advised of the latest changes in prices; ready to prevent mistakes of cost and selling prices in your business; ready to serve you faithfully and well. You need Allpriser!

Allpriser service consists of a flexible leather-bound book, 7 by 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

Kenneth B. Allison

4 Irwin Ave.

Toronto, Canada

Continued from Page 54

INGOT MARKETS REMAIN DULL
Toronto.

The ingot markets generally lack interest, and the dullness previously noted is still evident in certain quarters. Prices on metals have generally been maintained this week, with little revision in either conditions or quotations to record.

COPPER.—Fluctuations in copper prices continue to be apparent on both British and American markets. While some domestic business is reported by U. S. producers at the lower levels, quotations on foreign orders remain nominally unchanged. On the local markets, sales have been few, and nothing of an outstanding nature has recently developed. Quotations also remain unchanged at 17c.

TIN.—Considerable weakness has been registered on the English tin markets, but the rise in exchange has offset this trend to some extent. It is noted that futures are again lower on the southern primary markets, and while some factors are of the opinion that the current depression in tin has about run its course, others again hold the view that until certain weak holders have been able to liquidate their stocks, there is little probability for an advance in prices. The local quotations continue to be around 35c.

LEAD.—The market tone is easier and the volume of business coming in is smaller, according to current reports from primary sources. On the other hand, the firm tone is still apparent in the London lead markets, and coupled with the recent gain in sterling exchange, this situation may serve to again firm up southern quotations. The local price on lead remains at \$6.75.

SPELTER.—Consumers are still buying sparingly and on a hand-to-mouth basis. The volume of sales has not been very large, and even inquiries have usually been only for small quantities. The price of \$7.00 remains unchanged locally.

ANTIMONY.—This market is dull and unchanged. Antimony prices are meeting with little favor, and the quotations generally remain unchanged. Local prices vary from 8 to 10c, as usual.

ALUMINUM.—The market is again quiet and unchanged at previous price levels. Automobile interests in the United States are reported to have purchased fairly large quantities of aluminum at a figure well below the average American price, but the market generally lacks interest. Local quotations on aluminum vary from 28 to 29 cents.

WINNIPEG

WINNIPEG, September 5.—One of the most noticeable of current price changes on plumbing and steam-fitting supplies, is the revised list on wrought iron piping. This change brings prices to a slightly higher level on some sizes. Revision in other quotations however, are in a downward direction, including lower prices on eavestrough, conductor pipe and elbows. There has been a slight reduction in corrugated sheet iron quotations, while prices on wrought iron washers are also reduced. Stove pipe wire will now cost less, while lower prices on coiled spring and plain galvanized wires are in effect.

Other primary sanitary materials such as pipe fittings, compression work, range boilers, enamelledware, closet fixtures, radiators, and similar products, maintain previous price levels. Business in the majority of these lines is reported much more brisk during the past two weeks, and a fair volume of fall business is generally anticipated throughout the trade.

WIRE QUOTATIONS REDUCED**Winnipeg.**

Prices are now lower on coiled spring wire, and also on plain galvanized wire. Following are the prevailing quotations:

COILED SPRING WIRE—

No. 9, \$5.65; No. 12, \$5.85.

PLAIN GALVANIZED—

No. 9, \$5.60; Winnipeg; Fort William, \$4.95. No. 12, \$5.80, Winnipeg; \$5.15, Fort William.

SLIGHT REDUCTION IN CORRUGATED.**Winnipeg.**

The price has dropped slightly on corrugated iron. Following are the new prices recorded this week:

CORRUGATED IRON—**Galvanized—**

28 ga. \$ 7 88

26 ga. 8 56

Painted—

28 ga. 6 53

26 ga. 7 43

REDUCED QUOTATIONS SHOWN ON WROUGHT IRON WASHERS.**Winnipeg.**

Reduced prices are recorded this week on wrought iron washers and are as follows:

WASHERS, Wrought Iron—

Case Lots Less

3-16 \$ 12 70 \$ 13 20

3-16 11 26 11 76

5-16 10 62 11 12

3-8 9 90 10 40

7-16 9 34 9 84

1/2 9 02 9 52

9-16 8 94 9 44

5-8 8 86 9 36

3/4 8 78 9 28

7-8 8 70 9 20

1 8 70 9 20

1 1/2 8 86 9 36

1 3/4 8 86 9 36

1 7-16 8 86 9 36

1 1/2 8 86 9 36

LOWER PRICES ON EAVESTROUGH AND CONDUCTOR PIPE**Winnipeg.**

Quotations are lower this week in Eavestrough and conductor pipe. Following are the latest prices:

EAVE TROUGH—

O. G. Square Bead—	
8 in.	\$ 6 08
10 in.	6 75
12 in.	8 10
15 in.	11 25

CONDUCTOR PIPE—

Round Galv.—	
2 \$ 7 43	
3 8 55	
4 10 80	
5 15 30	

Corrugated Galv.—

2 7 65..	
3 9 45	
4 12 15	
5 17 10	

CONDUCTOR ELBOWS—

5 \$ 10 80	
6 12 60	

CONDUCTOR SHOES—

5 \$ 12 15	
6 13 95	

NEW LIST ON PIPING**Winnipeg.**

Prices on wrought iron pipe have been revised and are slightly higher. Following are the new quotations:

Size ins.	Winnipeg	Hat Add	Winnipeg	Winnipeg	Winnipeg	Winnipeg	Winnipeg
1/8	\$ 6 85	\$ 30	\$ 20	\$ 17	\$ 11		
1/4	5 40	53	34	30	19		
3/8	5 54	70	45	40	26		
1/2	7 18	1 05	67	59	38		
3/4	8 58	1 40	90	79	51		
1	12 30	2 08	1 34	1 17	75		
1 1/4	16 63	2 80	1 80	1 57	1 00		
1 1/2	19 90	3 35	2 15	1 88	1 21		
2	26 75	4 50	2 88	2 52	1 62		
2 1/2	42 30	7 18	4 60	4 02	2 68		
3	55 35	9 42	6 03	5 28	3 39		
3 1/2	73 23	11 25	7 20	6 30	4 05		
4	86 75	12 33	8 53	7 46	4 84		
4 1/2	99 50	15 61	10 04	8 75	5 62		
5	116 05	18 12	11 60	10 15	6 52		
6	150 50	23 45	15 00	13 14	8 44		
7	222 95	29 09	18 62	16 28	10 46		
8L	234 25	31 25	20 00	17 50	11 25		
9	322 95	42 20	26 96	23 69	15 16		
10L	299 85	40 00	25 60	22 40	14 40		

GALVANIZED PIPE

Size ins.	Winnipeg	Hat Add	Winnipeg	Winnipeg	Winnipeg	Winnipeg	Winnipeg
1/8	\$ 9 25	\$ 30	\$ 20	\$ 17	\$ 11		
1/4	7 90	53	34	30	19		
3/8	8 05	70	45	40	26		
1/2	9 12	1 05	67	59	38		
3/4	11 07	1 40	90	79	51		
1	15 95	2 08	1 34	1 17	75		
1 1/4	21 60	2 80	1 80	1 57	1 00		
1 1/2	25 83	3 35	2 15	1 88	1 21		
2	34 75	4 50	2 88	2 52	1 62		
2 1/2	54 95	7 18	4 60	4 02	2 68		
3	71 87	9 42	6 03	5 28	3 39		
3 1/2	93 10	11 25	7 20	6 30	4 05		
4	110 30	12 33	8 53	7 46	4 80		
4 1/2	126 95	15 61	10 04	8 75	5 62		
5	148 00	18 12	11 60	10 15	6 52		
6	191 98	23 45	15 00	13 14	8 44		
7		29 09	18 62	16 28	10 45		
8		31 25	20 00	17 50	11 22		

STOVE PIPE WIRE WILL NOW COST LESS**Winnipeg.**

Prices on stove pipe wire are included among the current market revisions. The new quotations are; No. 18, \$9.05 per cwt. No. 19, \$9.55.

Continued on Page 58

Stop! Look! Listen!

This is not a danger sign at a Railway Crossing, but a point in your business where it will pay to hesitate for a moment.

On Contract and Jobbing Work you can control your cost on heavy materials but how often does the labor cost work out to your satisfaction? The time used on the final clean-up is probably excessive. Possibly extra trips are necessary for a few Washers or on account of leaks.

Don't blame the men for extra trips and other troubles. Confine your purchases of Bath and Basin Supplies, Adjustable Traps, Rubber Goods, etc.—to an organization that specializes in the "Chicken Feed" of Sanitary and Heating installations. You will sure be Dollars ahead.

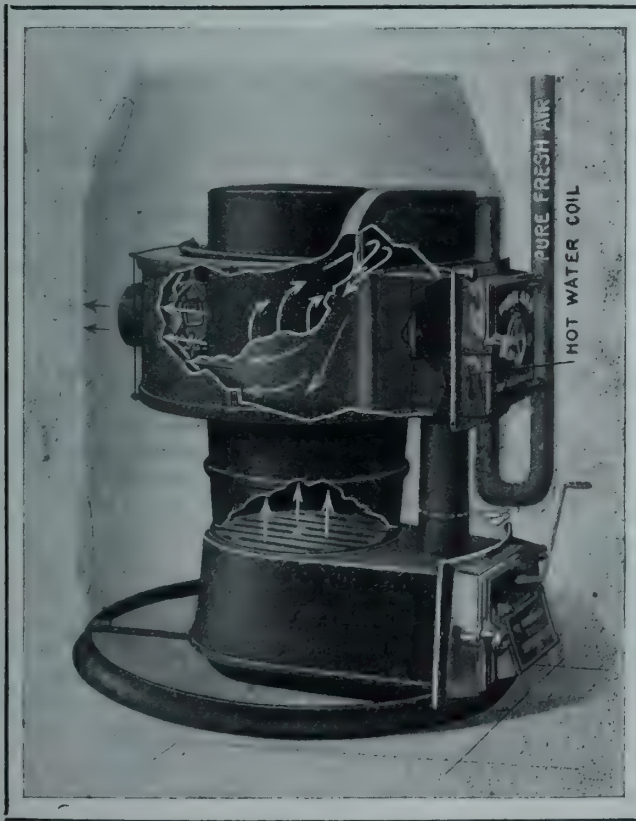
It will pay you to put in a reasonable stock now of N.P. Adjustable Traps and Supplies, Vent Tees, Threaded Collars, S.J. Nuts, Sink Bolts, Closet Screws, Flange Bolts, Hangers, Floor and Ceiling Plates, Bibb and Union Washers, Syphon Rings, Tank Balls, Boiler Repair Plugs, Tool and Fire Pot repairs, but why attempt a complete list. We have what you want, so just mail your list to-day.

WOLVERINE

76 Nelson Street

LIMITED

Toronto



VULCAN

Pure Air Furnaces

A modern type furnace embodying the latest scientific improvements in healthful heating.

Vulcan Pure Air furnaces are unexcelled for satisfactory service, economy in fuel, comfort in the home, and the little effort required to operate it.

The grate is so simple and reliable that it could be operated by a child. It is so well designed that no coal can drop through, which relieves the owner from the ash-sifting nuisance.

The constant supply of pure fresh air makes it the most healthful form of heating.

The Vulcan Co., Limited

Founders and Machinists

London, Canada

BRASS—	
Sheets, base, per lb.	\$ 0 27
Rods, base, per lb.	0 27
Tubing, base, per lb.	0 34
COPPER—	
Rods, base, per lb.	0 32
Soft sheets, plain, 16-oz. and heavier, per lb.	0 32
Do., plain tinned 16-oz. and heavier per lb.	0 40
Do., polished and tinned 16-oz. and heavier, lb.	0 45
Tubing	0 37

SOLVING TORONTO'S WATER SUPPLY PROBLEM

Duplicate waterworks system with the intake off Scarborough is the solution of water supply problem, Works Commissioner Harris reiterated when asked about the recommendations of the Canadian Fire Underwriters' Association. The report recommends a third intake, but the commissioner was inclined to think this of itself would be of little value. On some of the recommendations, as published recently, Mr. Harris would not comment, on others he pointed out that these had been recommended, but the Council did not feel warranted in making the expenditure and had struck the items out of the estimates.

The commissioner is now working on a new estimate of the proposed new duplicate waterworks system, the construction of which he has been urging for some years. The original estimate of the cost, made before the war, was \$6,000,000. While this cost would have been doubled in 1920, there has since been a slight falling off in the price of material and wages of labor.

Asked concerning a proposal that a pipe line be built to bring water from Georgian Bay, a distance of about seventy miles, he expressed his entire disapproval of the scheme. It has been pointed out in its favor that a supply of pure water could be secured in this way at less cost than a duplicate waterworks system. Los Angeles, it is argued, secures its water supply from a distance of 294 miles by gravitation, and the original cost of the pipe line there was \$22,000,000.

The commissioner stated that it would be foolish to go 70 miles to get water when it was available right at the front door of the city. The water in Georgian Bay would have to be filtered as well as that from Lake Ontario, and the filtration process would nullify the pressure and the water would have to be pumped here in any event. Another reason against the idea was that there is a division in the watershed between Toronto and Georgian Bay and the water would have to be forced over the elevation.

Mr. Harris was equally opposed to the Lake Simcoe source, stating that the water there was impure and warm in the summer and that the quantity required would likely affect the levels, and thus bring the city into conflict with the Dominion Government.

Heating the Home

(Continued from Page 31)

beyond any question that 55 per cent are defective in one way or another, and to remedy these faults would mean not only greater comfort and satisfaction, but the saving of very large amounts of money in economy. It's the worst enemy the heating contractor has to contend

with. A few of the defects are; lack of height, too small for the size of the heater attached thereto, cracks in the joints, acute offsets and poorly fitted smoke-pipe connections.

Urges Ample Heater Capacity.

"Next in consideration is the heating apparatus and its installation. I doubt if 10 per cent of the buyers of heating apparatus really know and understand what they are getting. The heater is only a generator of heat and while it is essential to install one of ample capacity and proper design, it plays only a small part so far as the comfort obtained therefrom is concerned.

"It is seldom that two installations should be made identically the same. If the building is severely exposed, very careful consideration should be given regarding the locating of the registers, cold air returns, or radiators. If only one or two sides are much exposed, another condition exists and so on, job after job, until we find the home surrounded with every advantage, so far as protection from severe winter blasts is concerned.

"In such case often, the heating apparatus is designed ideally but, being surrounded by trees and taller buildings, the flue will not develop sufficient draft to allow the apparatus to function properly. There are hundreds of such in existence to-day and the owners are wondering what is wrong.

Proper Location of Registers.

"In the installation of heating apparatus, little attention is given to the location of radiators, stacks or registers. A matter of convenience enters largely into the same. Often the housewife will insist upon having the heating unit placed in a most impractical location in order to suit the arrangement of the furniture, and frequently these units are located by the heating contractors and designers for convenience and economy in installation, rather than in locations more fitting with the room to be heated. There are as many steam and hot water radiators improperly located as warm and cold air registers.

"One example is the locating of a steam or hot water radiator or cold air return alongside of a stairway in the hall, in which case the cold air flowing down the stairway must make a complete turn to get to the radiator or return. The proper location, without a doubt, is directly opposite the foot of the stairway, and in such case the air will flow to the radiator or return air duct without resistance. This arrangement will cause better and more rapid circulation.

"I have now come to the essential features so far as the installation of a warm air heating system is concerned. These features I want to tell the world about. These features are the ones that the heating contractor and installer need checking up on, and one of these days this information is going to be spread broadcast, even if it is necessary to take up a connection to do it.

Insufficient Cold Air Supply.

"Eighty-five per cent of the warm air heating installations lack from 20 per cent to 75 per cent of as much cold air supply as the system requires to fill all of the warm air pipes.

"This lack of air supply is often caused through ignorance on the part of the installer or a motive on his part to reduce costs. Tests have proved, however, that the air supply on the average installation should be at least 20 per cent in excess of the warm air volume taken off in order to overcome friction in the cold air ducts. There are thousands of installations that could be made to give excellent results if the ducts were enlarged or more ducts added.

Leaks in Cold Air Return Pipes and Ducts.

"The warm air heating conditions in the home to-day are that 65 per cent of the cold air return pipes and ducts leak very badly, causing a great strain upon the heaters. Through this excessive leakage, proper circulation can not be obtained from the rooms above.

"Consequently, with 85 per cent of the warm air installations lacking sufficient air supply, and 65 per cent leaking badly is it any wonder that the full benefit of the heating apparatus is not obtained? Is it any wonder that basements become excessively warm? Is it any wonder that thousands of owners are dissatisfied and thousands of tons of coal are wasted? Can you blame an idealist for wanting to awaken the public to a realization of these facts?

Stop the Dust and Dirt.

"Another big factor that the furnace installer needs checking up on is the dust and dirt. Any heating system is bound to cause some dust from the dust being carried through the air, caused by disturbances from one cause or another while the air in the rooms is being circulated, but something must be done to stop the dust and dirt and smoke from the basement from being drawn into the rooms. Insist that the openings around stacks be stopped off, which will overcome one of the greatest complaints against warm air heating.

Educate the Public.

"Nearly every furnace manufacturer's catalogue contains information pertaining to furnace installation, but nevertheless, this information is not sufficient, for in many cases the public is not given the opportunity to read what manufacturers have to tell and further, in many cases, the public does not realize what the essential features are for satisfactory heating. Therefore, some means must and should be devised to bring these features to public attention. Says Warm Air Heating System Is Best.

"After thirty years of supervising and installing almost every method of heating, I am satisfied that warm air is the best method of heating the home, and if I were building a row of homes warm air would be installed in every one of them in preference to any other method."



PRESTO

Automatic ---- Saves Gas
No Special Motor Required
No Cumbersome Tank Needed

Can Be Used With Any Gas System

This is a remarkably efficient heater for profitable installation; a product of much more than passing interest to the hardwareman and plumber.

It is automatic and requires no match, no special motor, nor a cumbersome tank. As shown in the illustration, it makes a neat, compact installation, economical of space and ready for instant service at any time.

It will please your clients and build business and good-will. Write now, while you think of it, for full particulars.

The Presto Manufacturing Company

340 Amherst Street

Montreal



The Modern

There is complete strength in the electric weld. It constitutes a complete union of the metal, like a blacksmith's weld, but stronger. It is the modern scientific method and has been proven and tested over and over again until now it is used for such responsible work as steel bridges, ship building, locomotive building, mending broken pump bodies subjected to high pressures, and was even used to weld the broken crank shaft of the great steamer "Imperator" developing enormous horsepower. The Electric Weld is safe and sure.



The Canadian John

Grand Trunk Railway and Hill



Range Boiler

We realize that Plumbers should not be called upon to lose their time when replacing a defective range boiler, therefore we have arranged to pay the sum of \$2.00 in case an Electric Weld Range Boiler should ever have to be replaced, as well as provide a new boiler.

Installations of Electric Weld Range Boilers are advertisements for you. Constant good service and reliability cause you to be remembered favorably by your client and first in mind for his contemplated work. Electric Weld Range Boilers are modern boilers, good for modern business.

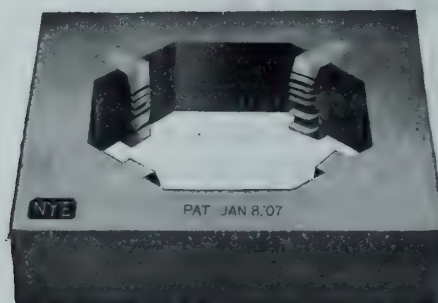
Wood Mfg. Co., Limited
ingdon Ave., Toronto, Canada



NYE TOOLS

The Quality Kind

NYE SOLID BLOCK DIES
NYE SELF LOCKING VISES
NYE CHAIN VISES
NYE SAUNDERS PIPE CUTTERS
NYE FOURWAY BOX STOCKS
NYE THREEWAY BOX STOCKS
NYE THREEWAY ARMSTRONG
STOCKS
NYE THIN BLADE CUTTE WHEELS
MADE TO FIT ALL STANDARD
TYPES OF PIPE CUTTERS



The
NYE
Tool & Machine Works
112-128 N. Jefferson St.
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In Canada From
All
Leading Jobbers

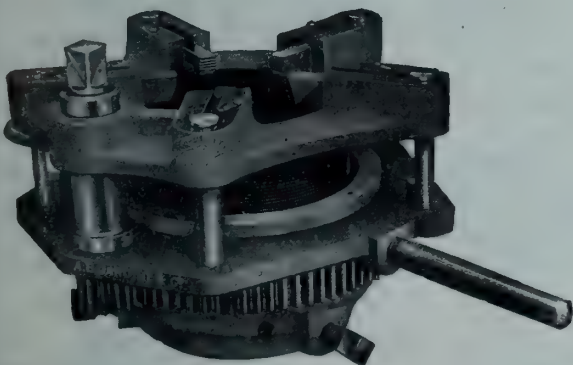


Kerr Valves

are well and thoughtfully designed. They are made from clear, sound castings, skilfully cast from correctly planned patterns that insure uniform walls in the castings. They are accurately machined and neatly and carefully assembled. Kerr Valves are strong, substantial, efficient and reliable.

*Catalogue No. 5
on Application*

**Kerr Engine Co.
Limited**
Valve Manufacturers
WALKERVILLE - CANADA



**"Toledo" Geared Adjustable Threading Tool,
No. 2½. Capacity 2 to 6½ in. inclusive.
Weight 120 lbs.**

JARDINE

TOLEDO

Pipe Threading Tools

In these effective tools the dies open out as the tool advances on the thread so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth.

Pipe Threading Tools

Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble. They work easily, smoothly, rapidly and accurately. A. B. Jardine and Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licenses to make and sell "Toledo" Tools in Canada.

A. B. Jardine & Co., Limited, Hespeler, Ontario

Ontario, West of Brockville:
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269 Richmond St. W., Toronto, Ont.

Brockville and East:
J. R. Devereaux & Co.
New Birks Bldg., Montreal, Que.

Winnipeg and West:
Stanley Brock Ltd.
Winnipeg, Man.

COUPON

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Address.....
Sanitary Engineer



Classified Buyers Guide

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C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

AIR PRESSURE TANKS

The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS

James Morrison Brass Mfg. Co., Toronto.

BATHROOM FITTINGS

Gendron Mfg. Co., Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto

BOLTS, EYE

J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.

Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trivmont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELTAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CEMENT

The Northwestern Chemical Co., Marietta, Ohio

CIRCULATORS

Atlas Engineering & Machine Co., Ltd., Toronto

CLAMPS "C"

J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CONDENSATION UNITS

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The Westrup Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS

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Empire Mfg. Co., Ltd., London and Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

DROP FORGINGS

J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM

Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
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ENAMELWARE

Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY

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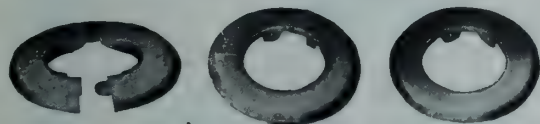
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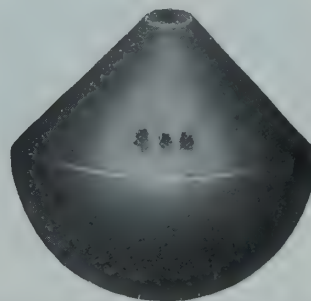
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Solid with set screw

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Our prices on B. & C. plates and air valves have been reduced to pre-war levels.

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Made from best quality rubber tops reinforced. Bottoms soft and pliable. We have a complete stock of plumbers' specialties, furnace repairs, "Ubel" pumps, etc.

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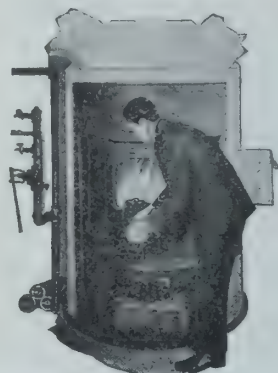
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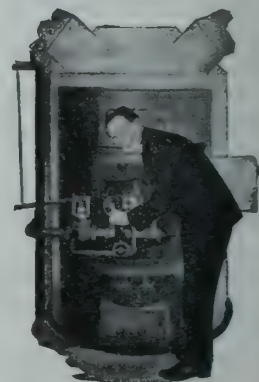


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The Franklin builds business for you; because it is economical in gas consumption, assures perfect combustion, is directly applied, simple and safe, instantly removable, permits coal substitution at any time, saves the coal and can be installed at a cost low enough to attract business and yet make real profit.

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FROM COAL TO GAS

FRANKLIN
Gas Burner Mfg. Company
 Cincinnati

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Rivets Mean Strength

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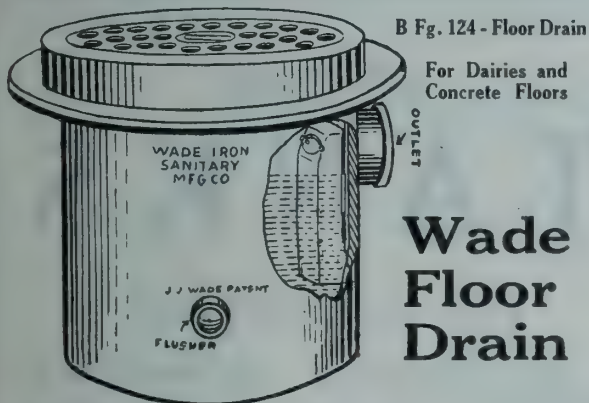
"The idea that a Weld could ever be perfect is quite illusory."

Insurance companies will not insure tanks or boilers under high pressure unless riveted.

Safety First

Specify Riveted Range Boilers.

Toronto Hardware Manufacturing Co., Limited



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Our catalogue will give full particulars of this service-built fitting.

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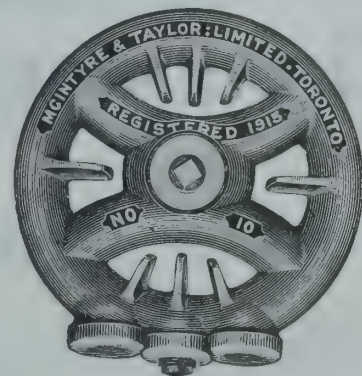
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Manufacturers and Dealers in
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Descriptions of Iron or Gravel and Grease Basins.

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Just take a good look at the design of this Coil. It is an actual reproduction and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils you are the loser. Send in your next order.

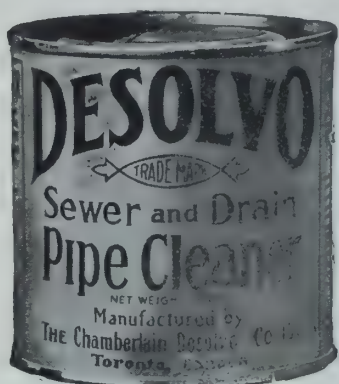
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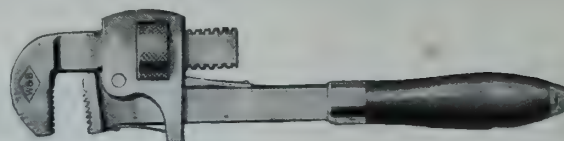
**Saves
Tearing
Up the
House
and
Lawns**

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flowerbeds until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

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Choose the Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

Williams' Stillson Wrench is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson. Wood and Steel Handle patterns—eight sizes, 6 to 48 inches.

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"The Wrench People"

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Hot Water Heating

Recent Installations in St. John's N.B., Halifax, Quebec, St. Hyacinthe, Toronto, St. Catharines, Sarnia, Sault Ste. Marie, Brandon, Man., Weyburn, Sask.

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There are no dark spots in Hardware and Metal's circulation. Our records are audited by the Audit Bureau of Circulations.

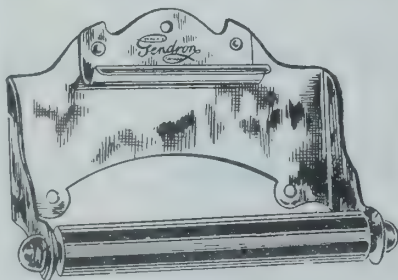
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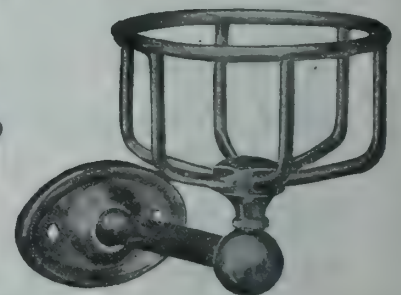
THE GENDRON MFG. CO., LTD. TORONTO



BATH ROOM



FITTINGS



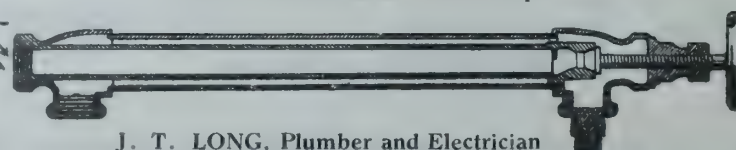
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Its advantages are many. There is no possibility of freezing if it is set so as to drain.

Requires no valves except those which control the admission of steam to the apparatus to which the trap is attached.

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Regulated to work against 1 and 200 pounds pressure.

Will drain from 900 to 1500 feet of one inch pipe.

Write today about its other advantages.

INDEX TO ADVERTISERS

Acme Waste Mfg. Co.....	Inside Back Cover		International Malleable Iron Co., Ltd.	49
K. B. Allison.....	55		Jardine & Co., Ltd., A. B.	63
Amherst Foundry Co.	Inside front cover		Katie Foundry.....	71
Anthes Foundry Ltd.....	16-17		Kerr Engine Co., Ltd.	63
Atlas Engineering & Machine Co. Ltd.	68		J. T. Long.....	70
Atlas Tank Works.....	68		Lord & Burnham Co. of Canada, Ltd.	13
Beaton and Cadwell Mfg. Co.	72		Marks & Co.....	72
Burrow, Stewart & Milne Co. Ltd.	18-19		McIntyre & Taylor, Ltd.	67
Canada Metal Co. Ltd.....	23		McDougall Co., Ltd., R.	53
Canadian Brass Co., Ltd.....	2		Montreal General Tool Co., Ltd.	51
Canadian John Wood Mfg. Co. Ltd.....	60-61		Morrison Brass Mfg. Co., Ltd., Jas.	11
Canadian Tube & Steel Products Co., Ltd.	72		Mueller Mfg. Co. Limited, H.	47
Chamberlain Desolvo Co., Ltd.	68		Porcelain Products Ltd.	69
Crane, Ltd.....	3		Nye Tool & Machine Works	62
W. H. Cunningham & Hill Co., Ltd.	65		Port Hope Sanitary Mfg. Co., Ltd.	32-33
Dominion Sheet Metal Corp., Ltd.	1		Presto Mfg. Co.....	59
C. A. Dunham Co. Ltd.	4		St. Louis Technical Institute.....	71
Empire Brass Mfg. Co. Ld. Outsidefront cover			Spencer Heater Co.....	9
Fittings, Ltd.	72		Standard Sanitary Mfg. Co., Ltd.	24
Franklin Gas Burner Co.....	66		Steel Trough & Machine Co., Ltd.	72
Galt Brass Co.	Back cover		Taylor Forbes Co., Ltd.	14-15
Galt Stove & Furnace Co., Ltd.	20-21		Toronto Hardware Mfg. Co., Ltd.	67
Gendron Mfg. Co., Ltd.	70		Vulcan Co., Ltd.....	57
Hall Zryd Foundry Company, Ltd.	5-6-7-8		Wade Iron & Sanitary Mfg. Co.	67
Hause Mfg. Co., Chas. F.	72		Warden-King, Limited	10
Hourd & Co.....	71		Welch & Son, Ltd., A.	72
Hoyt Metal Co.....	69		Williams & Co., Ltd., J. H.	68
Humphrey Co.....	12		Wolverine, Ltd.....	57

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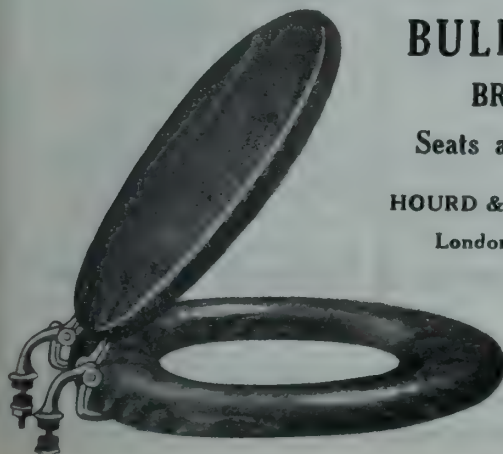
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BRAND**

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Plain****Closet
Bend**

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Iron Pipe Fittings*

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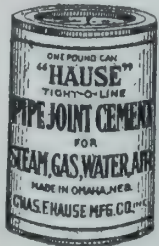
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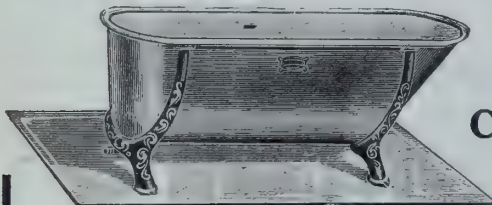
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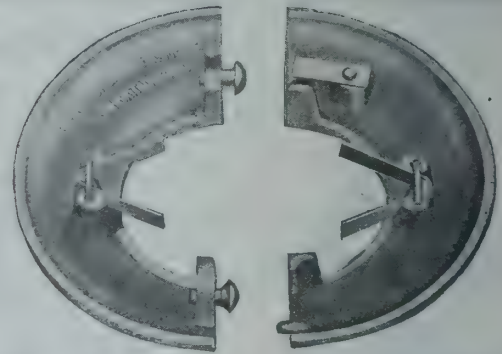
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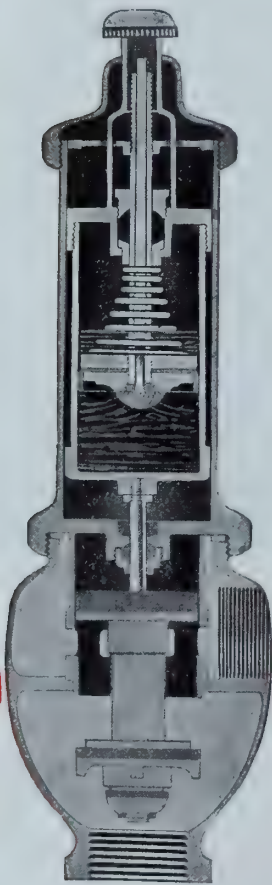
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Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, OCTOBER 1, 1921

No. 19

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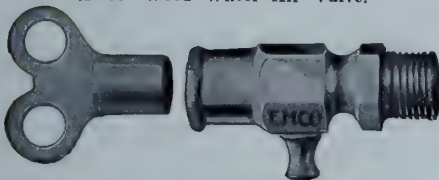
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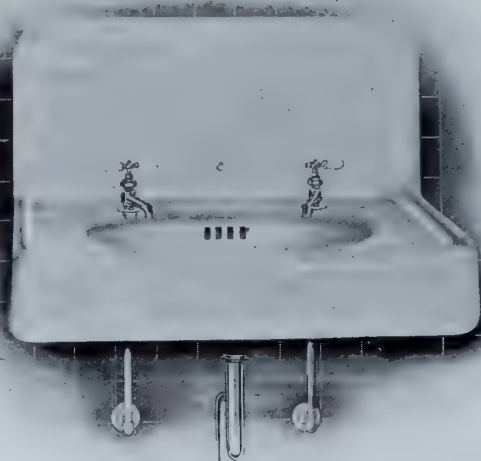


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Tinker Tom Talk
No. 332

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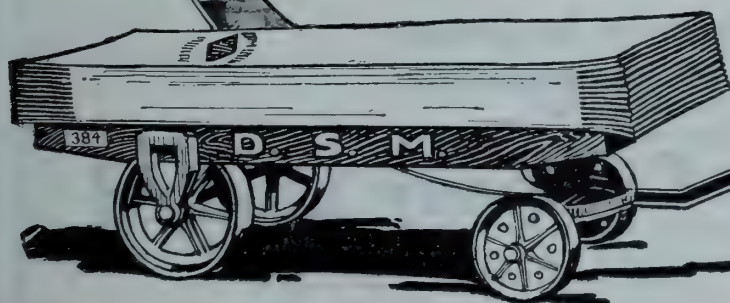
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"A Booster"

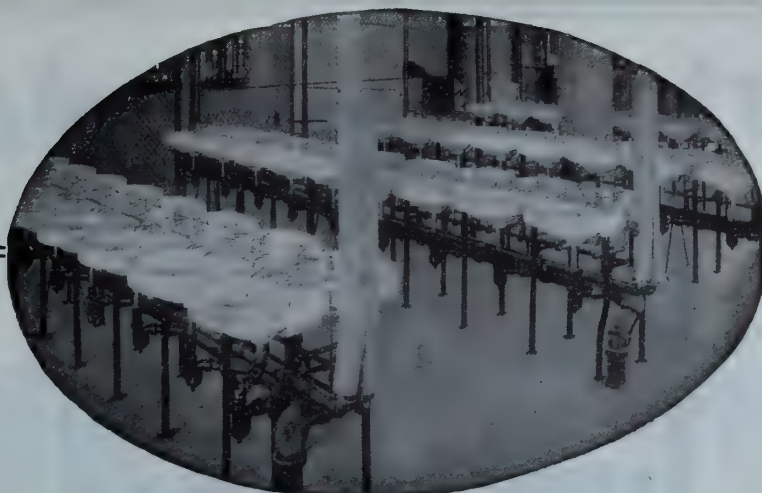
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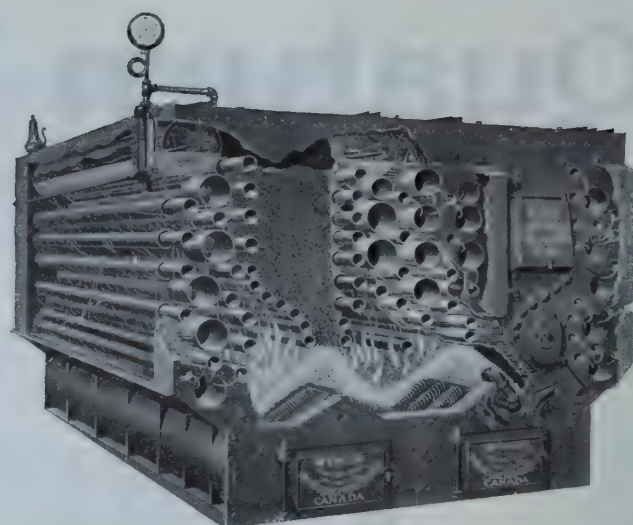
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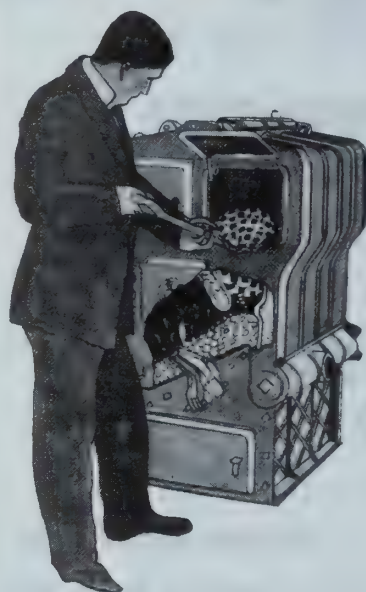


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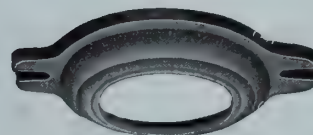
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Sink Collars

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, OCTOBER 1, 1921

No. 10

CONTENTS

Extensive Revision of Current Prices	11
Tackling Apprenticeship Problems	12
Developing the Water System Field	13
Practical Sheet Metal Work—Pattern for Spiral Chute	15
Editorial Comment	16
Sewage Disposal for Small Communities	17
Fan Blast System of Heating and Ventilating	18-20
Conducting "A Business Enterprise"	21-22
Some Effective Arguments for Plumbing	23
Co-operative Advertising Scheme for Plumbers	26
News from Here and There	27
Market Conditions and Tendencies, Montreal, Toronto, Winnipeg	28-36

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Vol. XV.

TORONTO, OCTOBER 1, 1921

No. 19

Extensive Revision in Current Prices

Plumbing and Heating Lines Undergo Considerable Price Revisions—Need for Close Study of Markets Emphasized—Building Construction Activity Increased by Lower Costs—Lower Replacement Values Affecting Prices of Manufactured Products

THE vital importance to all dealers in plumbing and steam fitting supplies of following very closely the various market reports, is once again accentuated by the numerous revisions in prices and discounts covering an extensive variety of lines included in the current quotations given on these supplies.

There have undoubtedly occurred more changes during recent months, than for a considerable period; and the present revisions constitute one of the most significant list of price readjustments among a number of such important occurrences. The new prices now given on materials which are of interest to the plumbing and steam-fitting trades—and as listed individually on the market pages of this issue of *Sanitary Engineer*—form a marked step in market history.

Not only is there the primary importance of prevailing price changes to consider, but the direct connection that exists between such downward revisions and the current volume of business, cannot be over-estimated. The matter of price is of paramount interest at all times, since it closely affects all phases of the trade, from the manufacturer to the consumer. Therefore, the revised quotations on these commodities have recently assumed an exceptional degree of importance, chiefly owing to the different changes which have developed during the readjustment period.

Wrought Iron Products

The marked downward revision in wrought iron products attracts special attention. A new pipe list, No. 53, has now been issued, bringing quotations on the smaller sizes approximately 7½ per cent lower, while at the same time giving a 10 per cent reduction on the larger sizes of piping. Wrought iron nipples and couplings are similarly reduced in conjunction, while the discount on wrought iron washers is changed in a like manner. Another substantial decline in the list on corrugated sheets is recorded, this change bringing these quotations on a more proportionate scale with the levels prevailing on flat galvanized. There is also a new list of quotations on range boilers, showing slight increases in the 30 and 35-gallon sizes, while giving easier prices on larger models. According to jobbing circles, it is hoped that this revision will minimize the unsettlement that has recently been apparent in these markets.

New lower prices are given on Canada plates, also on charcoal tin and terne plates. Quotations on brass and copper sheets, tubing and rods, record an average decrease of 2 cents per lb. The wire nail base price has again been reduced; while lower quotations are noted on iron rivets and burrs; stove bolts; nail, sledge, striking and machinist hammers; standard compression work; compression bath cocks; standard flat way stop and waste cocks; quick opening basin cocks; malleable fittings; cement, in bags; scrap brass; Victor

hack saw blades, and Trimo wrenches. Revised quotations are also given on closet combinations, bowls and tanks.

While prices may not be changed, information concerning other markets discloses varying stages of readjustment. The moderate expansion in steel consumption has created a better outlook for the future in this industry. Some American mills have increased prices on black and galvanized sheets; while a firm undertone has developed in cotton wastes, chiefly owing to conditions in the raw material markets, and recent gains in prices on manufactured cotton goods. Lead has also registered a gain in strength; but although the general depression is still evident in ingot, reports indicate that the belief is spreading these metals have now reached the bottom of trade stagnation. The size of the prospective order evidently governs the prevailing prices on boiler tubes. The scrap material markets generally remain in a sluggish condition.

Cement sales have improved, with the lower prices undoubtedly encouraging Fall construction work. Conductor pipe and eavestrough shows a satisfactory improvement; while business in enamelled ware is reported good. An improved volume of trade has been noted during the month of September in stoves and ranges; the furnace business being boosted by many houses being erected during the summer, for which heating apparatus is now required.

During recent months, the trend of prices has reflected, in a more or less accurate manner, the extent of market activity in these products. The steady, although necessarily slow return to business activity, is being developed principally among those industries which have already experienced more or less drastic reductions in prices; while in lines that are not yet fully liquidated, readjustment is still necessary.

Building Activity Increased

This condition has been illustrated in many seasonable lines; materials chiefly utilized in construction offer one of the outstanding examples in this direction. The comparatively low ratio of new buildings being erected during the early summer, was such as to cause surprise in many quarters, and in some cases high prices were cited as one of the factors at present retarding the natural progress of the building industry. Many of these supplies have since experienced price reductions of a fairly substantial nature—which are supplemented by the list of changes quoted above—and as a result not only has the volume of building been increased, but the activity in such products has registered a corresponding improvement.

With few exceptions, the development of lower price levels, has been followed with a brisker movement in the different products and an improved volume of sales. This applies chiefly to lines where it is generally felt that the price declines

(Continued on page 14)

Tackling Apprenticeship Problems

Large Gathering of Plumbers Decides Apprentices Must Be Interested When Young and Then Trained in Thoroughly Efficient Manner—Demand for Skilled Workers Exceeds the Supply—Good Opportunities for Skilled Men

APPRENTICESHIP is one of the problems facing plumbers' organizations in almost all parts of America and anything in the way of a solution will be read with interest. Certain methods of dealing with this subject were recently outlined at a large gathering of plumbers in Ohio. These methods are described herewith.

The demand for skilled workers exceeds the supply. The way to secure plumbers is to train them. The only way to train them is to catch them young and give them what they need and what the plumbing trade requires of them.

The new form of apprenticeship includes academic training and usually covers a narrow range of practical work. It differs from the old system in that it does require a long period of apprenticeship.

"Schools alone almost always fail to turn out skilled and practical workmen. Masters in the plumbing trade cannot teach the theory of their work nearly so well as the school instructors. Both theory and practice in plumbing are best learned from instructors when the two are given together.

"If the plumbing trade fails to attract apprentices, it fails to hold its place in our economic system. The apprentice system for plumbers today is a failure.

"Probably the reason it is impossible to get recruits for apprenticeship in the trade today is because it is impossible, as at one time, to drag a boy into the game simply because he knew no better and his father did not know what to make of him and thought learning a trade, any old trade suited the old man, that would keep the boy out of mischief.

Plumbing Education Neglected

"Our modern educational program is to give a child the best foundation for his life work in the brief span allotted under the law for schooling purposes. The plastic youth in gaining this foundation is given mathematics, mechanical drawing, a touch of design, an inkling of mechanics, a taste of carpentry, and the fundamentals of a thousand and one trades and professions that make up the fabrics of economic and social democracy. The plumbing industry fails to get its quota from these elementary schools because the trade is not presented to the youth in the proper manner.

"The first thing master plumbers will have to do is to sell the trade to the school boy. Education has become so universal that unless the trade is sold to the youth there will be no prospects. Can you imagine a school boy deciding to

learn plumbing when the professions of medicine, law, engineering, commercial management, and other attractive and more remunerative chances are offered? Can you imagine the plumbing trade competing with the Government which blazons on billboards from coast to coast that "You learn while you earn and travel, if you join the navy?" No, the master plumber must devise ways and means of presenting the most attractive phases of the plumbing business to the youth. The trade must be advertised and sold. These are the changes that must be made before securing material for a crop of modern plumbers.

"The competition of other trades must be overcome and even after this, there is another stumbling block which must be removed, surmounted, or destroyed before an adequate labor supply can be assured. Recruits for apprentices in the plumbing trade today are limited by the unions. Organized labor in its endeavor to control the trades labor market has operated on the theory that the fewer the journeymen, the steadier the employment, the greater the demand for men, and the less difficulty in securing high wage scales. Not satisfied to let the law of supply and demand control the plumbing market, the unions create artificial and unnatural conditions in spite of the fact that by so doing they defeat their own aims and purposes.

"As a means of solving the apprentice problem, the master plumbers must conduct a campaign of education among the journeymen plumbers. All possible pressure must be brought to bear to show these men that additions to the union ranks are not sufficient to take care of increasing building activities. Working with the journeymen and through public

schools the third and final phase of apprentice training is approached, and in this connection an outline of what has already been done will be briefly sketched.

Schools Aided Financially

"The Federal Vocational Training Act provides that all schools and classes reimbursed under it shall be carried out under the supervision and control of state boards for vocational training. For 1917 and 1918, \$2,307,460.44 was available, of which 75 per cent was expended by the various states. In 1920, \$3,054,919.01 was allotted. In 1919 and 1920 Ohio received \$152,428.90 from the federal funds. A like amount was available last year from Ohio funds and was turned over to the various state schools and universities supplementing the federal money.

In 1919 and 1920, twenty-one plumbing schools in the United States received federal aid, eleven were evening, four were part time and six were all day.

The government in granting this wonderful opportunity has provided for teacher training and last year 325 men and 31 women accepted federal aid in preparing themselves to teach.

"Ohio employs a full time trade and industrial educational director. The plans for the coming year contemplate spreading industrial education over a large area.

"The old and present apprenticeship system is obsolete, its essence remains, but the system does not meet the demand for proper industrial education. Industrial schools do not furnish everything in the way of vocational training but the two systems, vocational education and apprenticeship should do so, so that the necessary skilled mechanics can be secured for the plumbing trade."

UNIONISM vs MANAGEMENT

One of the wisest proposals which has yet come from the Typographical Union has just been made—the organization of a Printing Company composed of members of the Typographical Union now on strike. All other Unionists now on strike or dissatisfied with the attitude of their employers might try the same plan.

In this way the printers will be able to test their theory that the public will pay from thirty-six to forty per cent more for their printing. This is the real basis of the present strike.

The MacLean Company, and the large number of men and women who joined this organization after the Union members refused to work on the war scales, believe they understand the business situation better than the professional leaders of the Union. They believe that if an attempt had been made to increase the cost of printing from thirty-five to forty per cent., the public would go on strike and hundreds of printers would be thrown out of employment.

In manufacturing it is the selling not the producing end that has the hardest job.

Developing the Water System Field

No Longer are Progressive Plumbing and Heating Engineers
Classed as "Workmen"—Plumbers Becoming Real Merchants—
How Running Water Can Be of Direct Service to the Farmer—
Securing Live List of Water System Prospects



The plumber whose showroom is depicted herewith has many good prospects for water supply systems in the rural districts nearby. He believes the best way to get the farmer interested is to develop in him a desire for the convenience of the many fixtures shown in this display and then bring him to the showroom and let him see the pump in working order, supplying the necessary water to operate the various fixtures. In this arrangement are seen laundry tubs, closets, bathtubs, basins and many of the minor fixtures which complete an attractive and desirable bathroom equipment.

"PLUMBERS should be real merchants in their trade, rather than considered as mere workmen," said H. I. Fields of the Duro Pump Manufacturing Co., in an address given at a recent gathering of dealers in sanitary fixtures, plumbing supplies and similar branches of industry.

The extensive field for future water system installation in rural districts, was emphasized by Mr. Fields, who also pointed out the increasing popularity and rapid spread of farm hydro-power lines, a sequence which has aroused the keen desire of large numbers of agricultural workers for the convenient comforts of the city home. Antiquated methods of getting water, methods which really belonged to ancient days, were compared by means of illustrated slides with the up-to-date pumping systems now being installed in many farms and villages. "In locating upon the land, the farmer has always been faced with the problem of adequate water supply, but there has also been apparent the diffi-

culties of obtaining same, and this matter is of primary importance to the busy farmer no matter what the scale of his operations."

"There is no longer any need for the farmer to spend his time and energy drawing water at the well," said Mr. Fields. The modern method supplies water for the greenhouse man, the conservatory and landscape gardener, for the dairy farmer, or the numerous needs of the barn. "There are special occasions where hard water conditions locally offer big openings for deep well pumping outfits, and many industrial and commercial applications have used this individual system to advantage."

Field For Rural Plumbers

The big field for rural plumbers and similar dealers in small country towns lies in rural schools, country estates, institution buildings, as well as the more frequent farmhouse.

Business opportunities were not alone confined to the sale of the original pump-

ing outfit, as the speaker referred to the various ways and means whereby water, now made easily accessible for the farmer, can be of direct service. Baths and toilets, wash basins and sinks, with many pipe lines and fittings, provide innumerable openings for the progressive dealer in sanitary and plumbing installation.

According to Mr. Fields, the manufacturers are now vitally interested in helping the dealer to create more business, and to this end are willing to offer ideas and suggestions as to how the retailer can take full advantage of the increasing openings in this direction.

Advance strides have been made in the direction of progress by certain phases of the plumbing industry, when the old-time plumber—considered merely a workman—was compared with the present dealer in sanitary fixtures, with attractive stores and business-like displays.

Various styles of window sales-helps were described by Mr. Fields. Miniature

farm houses, with an open side showing the interior water fittings, which are connected up with a demonstrator pump offers a unique attraction. The principle of running water in the window display is one of the main features, and a similar adaptation showing a barn with cattle and horse stalls with drinking troughs and other similar conveniences, conveys to the onlooker the idea of perfection in advanced farming industry in its many branches.

Another window picture of a modern kitchen with a washing machine in action, and running water in the sink, is a sure attention-arrester, although the idea is not entirely new. And the same chance for selling the idea, is offered through the display of a modern bathroom, with its many comforts and advantages over the usual farm outhouse. Signs or cards drawing direct attention to these many features, complete the "silent" salesman.

Securing Prospect List

The story was told of one progressive rural dealer who offered to freely give away one pump on a certain date, to one of the many registering their names and addresses with him before the set period was completed. The only condition was that all those who registered their names must have a need for the pump, should he or she be the lucky winner. Thus it was easy to see that the list secured were practically all prospects for water system installations, and the resultant sales and profits many times repaid the cost of the one pump given away.

Advertising Letters Help

Linking up local advertising with a personal letter campaign, were also salesmanship methods advocated by Mr. Fields. Useful and practical pointers in display cards or advertising were the many devices and inventions aimed to assist the farmer on the land, while this phase is compared with the minority of those possessing advanced ideas of lessening the monotonous drudgery of "chores", and easing the housewife's work on the farm.

The different processes of pump manufacture, and the various comparative merits of both the tank system and the tankless type installations, were other factors described by the speaker.

Link Up With Sewage Disposal

That the installation of a water system in any country building should be linked up with a sewage disposal, was strongly advocated by Major Anthes, of the Anthes Foundry Co.

"The plumbing industry has both these factors to deal with," declared Major Anthes, "and while the rudimentary comforts of civilization are brought to the farm through the application of scientifically controlled running water, yet adequate sanitation is also very essential."

The subject of sewage disposal is now considered of importance in educational circles, and many inquiries as to problems and difficulties arising in this con-

nection, have been received by the Ontario Agricultural College. Major Anthes pointed out that the buyer must be educated to addressing such inquiries to the trade, for there were many opportunities for improved facilities and future business in these situations.

Major Anthes further advanced the suggestion that individual water installation coupled with the sewage disposal bed, will likely become very popular in districts and localities where trunk lines are too expensive for small towns, owing to the rocky nature of the surrounding land. The conveniences of the properly adjusted septic tank, and the educational efforts being carried on by the manufacturers in order to interest the farmers as a class in this vital problem, were among other matters referred to.

The meeting was held in the general offices of the Empire Brass Manufacturing Co., at Toronto, and presided over by Manager O. L. Robb, who addressed a cordial welcome to the dealers attending.

EXTENSIVE REVISION OF CURRENT PRICES

(Continued from page 11)

have attained the present limit in recessions, and a temporary basis, perhaps followed by slight advances, are next in line. The steel industry supplies a direct illustration of this occurrence, for as prices on iron and steel continually sagged during the summer months, the percentage of production showed a corresponding decline. Price cutting between the various producers to a point where little or no profit for the mills existed in prevailing prices, was a recent feature. Quotations reached a level where further lowering entailed direct sacrifices on the part of producers under existing trade conditions, and it is significant that in conjunction with lower price levels, came a gradual and moderate broadening in the demand for steel.

Lower Replacement Values Affect Prices

It is pointed out by some manufacturers that price reductions recently occurring, have been attained by considering lower replacement values and in the sacrifice of profit percentages. While slow to adopt this policy, yet the total turnover has since registered a more satisfactory volume, because of the stimulating effect which the new price levels had on sales generally; especially in lines where stocks of goods produced when cost ratios were at the peak, have been liquidated.

The further readjustment of prices is, in many cases, retarded by high transportation charges, fuel costs, and in a few instances, wage levels. The maintenance or higher wage schedules are the primary factors behind both the railroad and fuel industries, with their corresponding reflection in production costs.

Reducing overhead expenses, while at the same time increasing individual and collective efficiency, are methods being utilized in production circles to effect

lower quotations. These elements, coupled with the moderate and gradual acceptance of lower wages by vital industries, foster a contributory decline in manufacturing cost levels, thus reducing replacement values and assisting the return of normal activity.

What News papers Say

Excerpts from the newspapers showing their trend of thought concerning sanitary engineering interests.

Excluding Canadian Plumbing Goods

Hamilton, Ont.—Witton & Walsh, architects, employed by the board of education in connection with the construction and installation program planned for the West avenue school, have issued the following statement, apropos of statement published in a local paper alleged to have been made by a local plumber. The critic of the school board is stated to have declared that the specifications shut out Canadian-made products, and that United States goods were to be used instead of Canadian goods, and at much increased cost.

Here is Mr. Witton's statement:

"Canadian-made plumbing fixtures are mainly enameled iron. Only small pieces are made and for these the patterns are few.

"For the West avenue school there are specified 29 water closets, 12 urinals, 2 sinks, 1 stop sink, 2 drinking fountains and 2 lavatories.

"For the first forty-one fixtures even the manufacturer of enameled iron would use vitreous or porcelain ware in his own home; of these 29 are Canadian make and 12 are not made in this country. The two sinks are enameled iron, and the stop sink, drinking fountains and lavatories, a total of five fixtures, are not enameled iron as the prices of this ware have been so advanced that they can be obtained in vitreous or porcelain at about the same cost. As to comparative merits it need only be said that when the latter cost two or three times the former it was used in the best work.

"The plumbing, heating and ventilation as installed in the schools in this city have the merits of being about the cheapest in first cost, the most efficient in service, and least expensive in maintenance of any city in the province."

"Regarding exclusion of goods other than those specified the following is a clause in the specifications: 'Where any particular brand or manufactured article is specified it is to be considered as standard; another brand or make equally as good in the opinion of the architects will be accepted.'

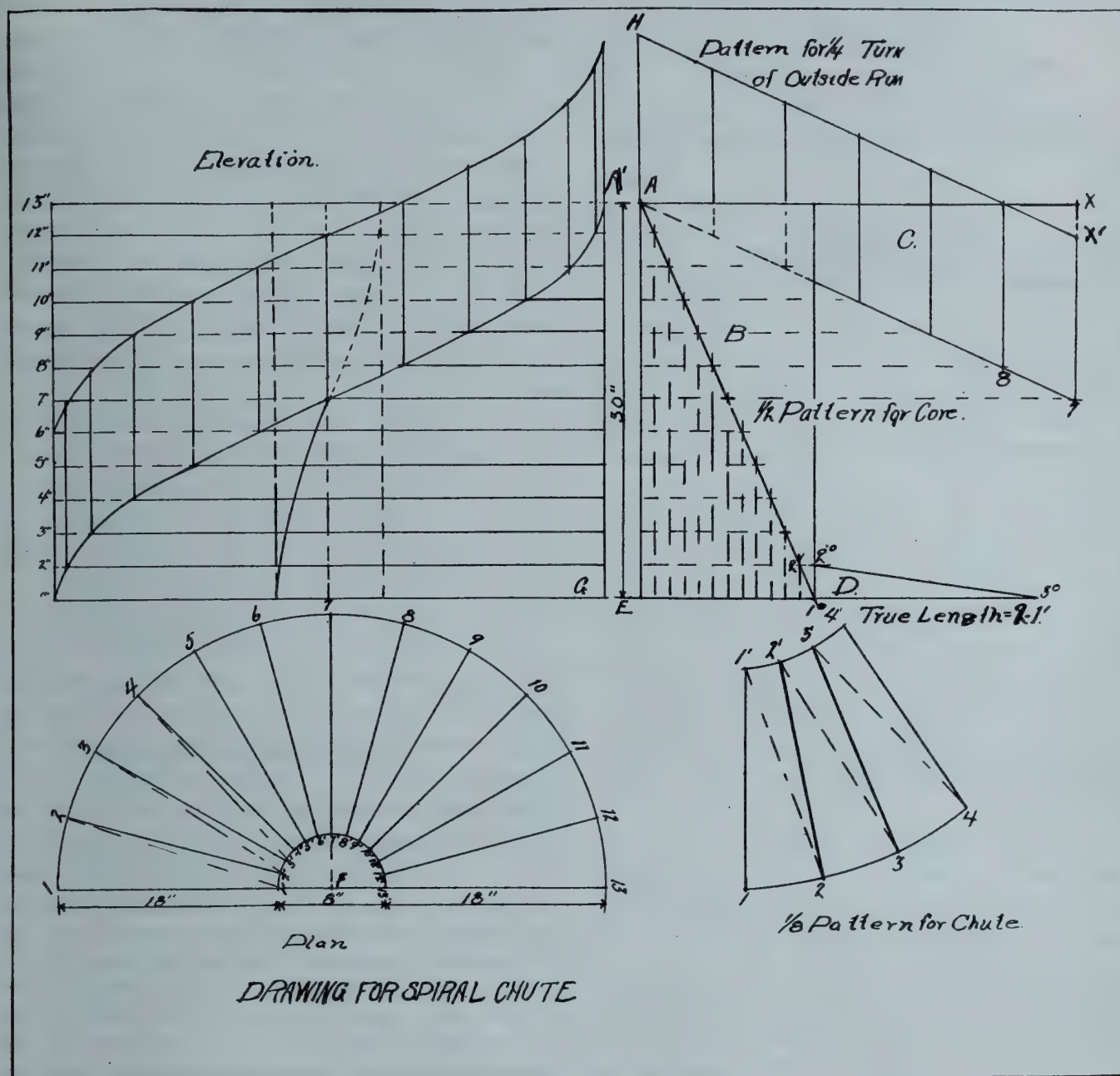
"The heating boilers specified are Canadian make; burn the cheapest kind of coal; create absolutely no smoke nuisance; are water tube type, permitting the raising of steam rapidly; are low in height, permitting of saving in depth of basements; are magazine feed and thus more readily fired; do not require bricking in, and if, in themselves higher in first cost than standard tubular boilers, are not so expensive when the necessary brick setting of the latter type is added to the cost. The saving in fuel alone will pay this first cost in two years' operation.

"No water tube boiler can be purchased for the price of a fire tube, but a water tube boiler is well worth the difference in cost.

"When costly devices, requiring power to operate, are added to standard boilers to permit them to burn more expensive coal without smoke, to say nothing of advantages gained in the cost of the building by shallower basements or other factors enumerated it may be seen where the true economy lies."—Hamilton Spectator.

Pattern For Spiral Chute

By O. W. KOTHE, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri



A DRAWING for a special chute has been asked for. Since it is desired to have one and one-half revolutions in 75 inches we will work from one half plan. First draw the half plan of core 8 inches, the width of bottom set off on the same line, any width desired, as shown in plan 1 to 1 ft.—in this case I have used 18 inches to save space.

Using F as center and F, 1 as radius strike outer circle. Next divide into any number of equal spaces, in this case, 12. Draw solid lines from each point toward F until they touch inner circle as shown.

Next divide these spaces into triangles by drawing lines from 1-ft., 2, 2 ft. 3, etc.

for future use. This completes drawing for the plan.

The next step is to obtain the elevation. On any line parallel to 1 13 of plan draw 1 inch G of elevation equal in length to the extreme diameter of chute, and erect lines G, A ft., 1 inch, 13 inch also elevation lines of core, as we are working from one-half plan we must have one-half elevation.

Since we are to make one and one-quarter revolutions in 75 inches, one-half revolution equals 30 inches or 75 inches divided by 5 quarters equals 14 inches to one-quarter revolution or 2 quarters, times 15 inches equals 30 inches equals 30 inches drop one-half revolution.

Since we have divided the plan into 12 spaces it is necessary to divide elevation into 12 spaces as shown.

To obtain outline chute in elevation place Tee square at right angles to 1 13 of plan and cut lines of corresponding number in both inner and outer circle, a line traced from point to point will be outline of chute.

The next step is to obtain pattern for core. In line F, 1° place stretchout using 1 ft., 13 ft., of plan. The height will be one-half revolution. A line drawn A to 1° will be line on which to rivet chute.

As it is desired to have an open top chute the next step is to obtain pattern

(Continued on page 17)

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PLUMBING AS A SANITARY MEASURE

THE STATEMENT credited to the Mayor of Ottawa at the recent convention of the Sanitary Inspectors' Association of Canada, to the effect that sanitary inspectors are more important than doctors, will doubtless arouse widespread comment. Whether or not such is really the case is open to much discussion. It is a recognized fact that prevention is better than cure and the sanitary inspector has wide powers in preventing unsanitary conditions. On the other hand there may be means of contracting disease which are beyond the control of the sanitary inspector. At any rate once disease of a contagious nature is contracted the doctor becomes a most important factor in preventing an epidemic by effecting a rapid cure of the isolated cases.

One of the most important branches of the sanitary or plumbing inspector's work is the inspection of plumbing installations, and therefore the plumber becomes an important factor in the preservation of healthy conditions throughout the community. The difficulty has always been that his importance in this regard has been underestimated. It is therefore encouraging to note that some progress has recently been made toward bringing the trade to a plane on which its operators will be recognized as important elements in the preservation of sanitary conditions. One of these indications of progress was the favorable attitude of the convention toward allowing plumbing inspectors to join the Sanitary Inspectors' Association of Canada. It was the belief that such an amalgamation would be of mutual advantage to both organizations. Along with the fact that sanitary appropriations are being greatly increased in Ontario and other provinces, these developments should result in much good to the plumbing industry.

MORE EFFICIENCY NEEDED

CREDIT reports from the Canadian Credit Exchange indicate that not more than 3 per cent. of the operators engaged in the plumbing and heating industry in Canada, pay their accounts promptly. This is very significant when it is considered that this large percentage will necessarily include a very large number of old established firms, many of which will have been in business in Canada for fifty years or more. It indicates a negligent attitude toward the recognized principles of business efficiency, a negligence which has been passed on to the new operator entering the field from his more experienced predecessors, and which has secured a firm hold on the great majority of operators.

The end of the road for many firms which follow such negligent methods is business failure. If they are fortunate enough to escape this tragic end they will most certainly be prohibited from securing as large profits as they would have experienced had they adopted efficient business methods.

Prevailing conditions call for the application of the utmost efficiency in business. The inefficient operator who neglects his buying, selling and general conduct of his business will not last long in face of to-day's competition for the reduced volume of trade available. Plumbing operators to-day should study book-keeping methods and plans for promptly collecting outstanding accounts and put these plans into effect. Many of such plans have been outlined in past issues of *Sanitary Engineer* and others are constantly being printed for the information of readers. This valuable data will be useless if it is not applied to the business of every operator who reads it, providing he already has no such plan in operation. It is necessary for the operator to maintain good credit relations with the manufacturers in order that the utmost efficiency might prevail throughout all branches of the industry. If the plumber neglects to collect his accounts when due and he forces the manufacturer or jobber to wait for payment the effect is felt on a broad scale and the pinch will eventually be felt by all concerned.

In this the plumbing and heating operators may not be alone to blame. The manufacturers in many cases allow too much leniency in credit extension. If a stringent policy of credit limitation were exercised by all manufacturers and wholesalers this practice might be discouraged, and it would be a fitting example of what the plumbing and heating operators should practise themselves.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May be Referred to and Studied

FIG. 46 shows a cheap method of constructing a grease trap for collecting the waste from the kitchen sinks. It has been found from experience that grease undergoes very little change by bacterial action in any tank treatment and is very detrimental as it in time collects and chokes up the whole system and therefore should be kept out of the septic tank and tile drains by installing this simple sanitary fitting under the discharge pipe from the sink; the grease collects at the top and can be periodically and easily taken off and buried, thus saving one very grave objectionable feature to the successful working of a small private sewage system.

The trap consists of two large glazed sewer tiles buried in the ground and fed by a two inch iron pipe inlet. The outlet, of 4-inch glazed sewer tile which is connected to the sewage system, must have its inlet well below the surface of the sewage as the grease, being lighter than water, floats on the top and is thus pre-

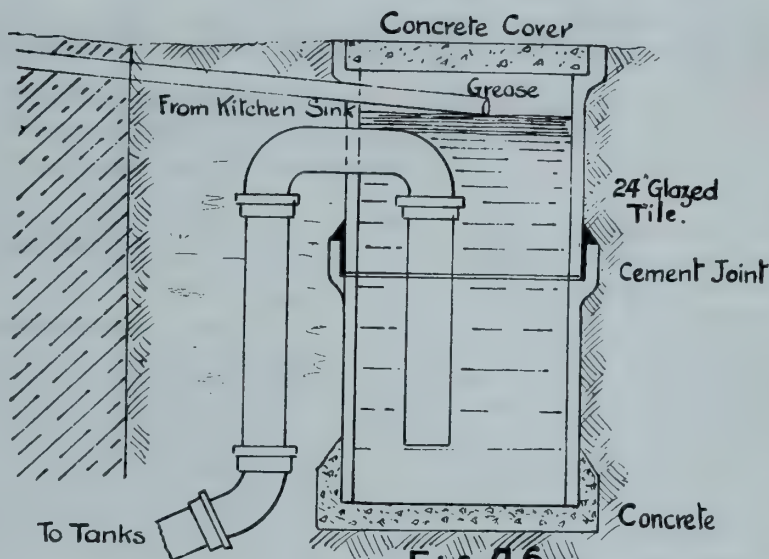


FIG 46.

vented from entering the outlet.

It is not always possible to design a small sewage installation on the gravitation system entirely and often a low lying portion of the district has to be elevated in order to discharge at a central disposal plant.

The cheapest, best and simplest form of lifting sewage is by means of installing a small pumping station suitably designed and generally located at the lowest elevation of the sewage system.

Pumping stations can either be built above or below ground level, depending upon the outlet level of the main pipe discharging into the receiving well and the class of the property where same is located. In some cases a sewage pumping station situated above ground level in a residential district would depreciate the value of the property, and it is always advisable to construct an underground pumping plant although the first cost would be greater. The general layout of both the above and underground stations is similar in general principle and we will describe and illustrate the more difficult one to construct namely, the one underground.

PATTERN FOR SPIRAL CHUTE

(Continued from page 15)

for outside rim. On line A, X, set off one-half stretchout using spaces 1, 2, 3, etc., of plan and draw lines as shown in drawing C, and from each point in outline of elevation with Tee square cut lines of corresponding number and draw lines as shown (I have used one-quarter stretchout to save space), A, H, and 7, X'.

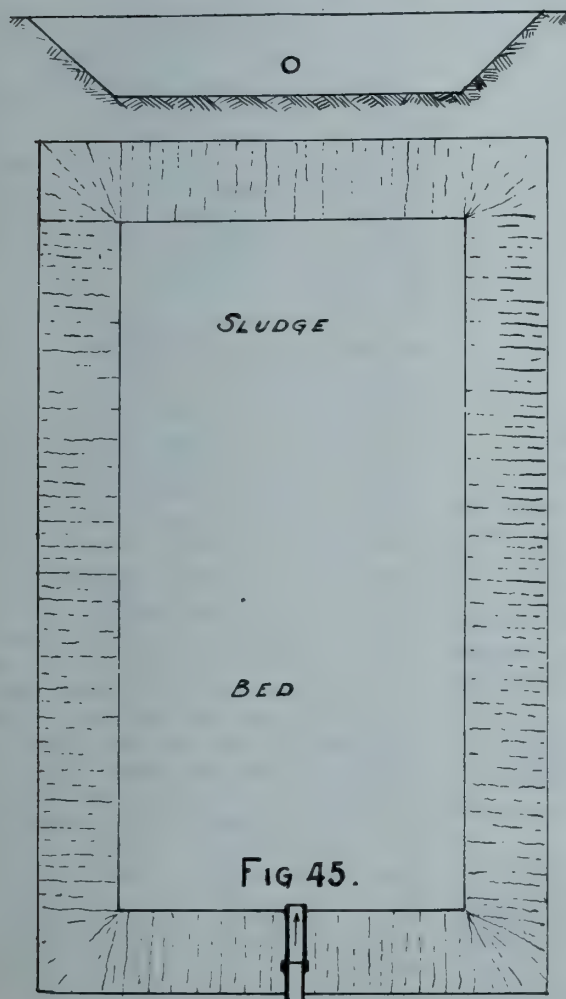
The next step is to find the true length of dotted lines in plan. As we already know the length of solid lines, draw any lines, as 1°n, 3° at 1°. Erect a line equal in length to one division of elevation at 2° drawing D, make 1°, 3° equal in length to 1' 2 of plan, a line drawn from 2° to 3° will be the true length of dotted line of plan.

To lay out the pattern, proceed as follows: On any line set off the distance 1, 1' of plan using 1' as center and 2° 3' drawing D as radius; strike arc 1', 2, next using I as center and 7, 8, drawing C as radius strike arc 1, 2, then with 2 as center 2, 2' as radius strike arc 2, 2' with 1' as center and 1°, 2° as radius strike arc 1', 2'.

This completes one-twelfth of the desired patterns. Carry out as far as you like. In this case one-eighth pattern has been developed, edges for rivets must be allowed.

CATALOGUES AND BOOKLETS

Cunningham & Hill, Ltd., have a new stock list of plumbing specialties which may be had on application to 269 W, Richmond St., Toronto.



Heating and Ventilating

Fan Blast System of Heating and Ventilating

The Method Described is that of Heating the Air and Blowing It Through Pipes with Attachments Similar to Syphons, Which Assist in Mixing the Hot and Cold Air

IN the following an improved heating and ventilating system is described in which air is used as the heating medium; it possesses special features by which it differs from the ordinary fan blast system and by which the disadvantages of the latter are practically eliminated. It may be said that the new fan blast system is not only superior to the present systems of its own kind, but that it may also replace steam and water heating systems in buildings where the fan blast system has hitherto been impractical or too expensive.

lets between their two ends which they exert upon the air of the interior, they may properly be termed "circulating outlets."

Advantages of New Method

From this mixing of hot air with air taken from the interior just prior to the discharge into the interior and from the resulting circulation of air in the interior there results a number of advantages which cannot be obtained either by the present air heating systems or, in fact, by any other of the existing heating systems except at extraordinary expense.

compared to those of a system of the present type.

6. From the fact that the air drawn from the interior into the outlets is taken from the lower part of the zone of occupancy the following advantages result:

7. Heating and renewal of the layers of air close to the floor without overheating the upper layers and without draft to the occupants.

8. The large amount of heat usually necessary for the roof and walls does not pass through the zone of occupancy.

9. Reduction of heat losses through the roof and walls.

10. Draftless circulation of the hot or fresh air through the zone of occupancy and in absolutely positive manner.

11. Existing heating and ventilating systems where inconveniences from drafts, overheating of the upper zones and insufficient heating of the lower zones or poor ventilation of the zone of occupancy are obtaining can be improved by changing the ordinary outlets to circulating outlets, as shown in Figs. 1, 2 and 3.

12. Existing fan blast systems can be increased in their heating capacity by changing the ordinary outlets to circulating outlets.

13. In cooling and ventilating systems, such as are used for theatres, audience halls, school houses, etc., the circulating outlets greatly improve the uniform and draftless distribution of the cool fresh air.

Uniform Temperature in Interior Near Floor and Roof

If we consider a building in which a large part of the heat is lost through the roof and where, therefore, a large quantity of heat must be transferred to the roof surface, we find that this can be accomplished in different ways. The zone near the floor could be heated directly and uniformly either by heating the floor underground or by providing numerous small radiator units throughout the interior in the lower part of the zone of occupancy. In the first case, the initial costs are prohibitive; in the second case it is impracticable to place many small radiator units all over the

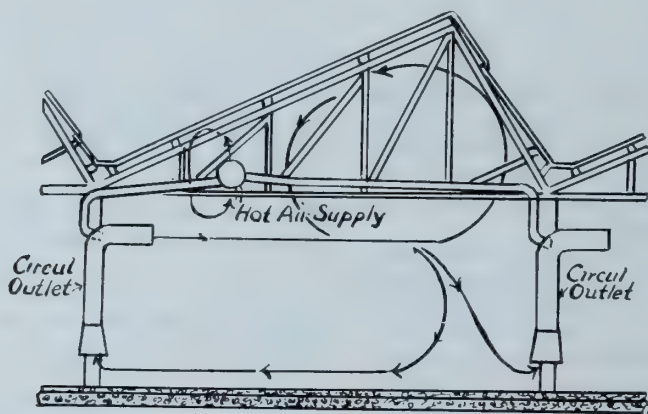


Fig. 1.—Course of air with circulating outlets in building of sawtooth construction.

The salient feature of the new fan blast system lies in the outlets which transmit the air to the interior, two typical forms of which are shown in Figs. 1, 2 and 3. In these outlets the hot air draws, by an injector action, air from the interior into a short duct, the ends of which are placed at different levels. The hot air mixes itself with the air drawn from the interior and the mixing is done just prior to the discharge of the mixture into the interior. The air withdrawn from the interior passes, therefore, only through a short duct and need not pass through the conditioning apparatus, the blower fan and the main duct system, as is usually necessary in fan blast heating systems of the present type. On account of the circulating effect of these special out-

With such outlet it is possible:

2. To heat the air coming from the heating apparatus to much higher temperatures than hitherto considered advisable.

2. To reduce the size of the blower fan, heating ducts and air washer (where used) to one half or even less of those of the present systems.

3. To employ air heating systems in buildings, such as office buildings, loft buildings, etc., where hitherto their application has been either not practicable or too expensive.

4. To discharge into the interior large quantities of air the temperature of which can be much lower than that of the air discharged by present systems.

5. To reduce in many cases the first costs and the costs for horse power as

floor. The usual practice is to provide large units of radiators near walls and columns which are creating individual upward currents of hot air and downward currents of cool air, causing large heat losses through the roof and hot zones and cold drafts in the zone of occupancy. In both cases the total quantity of heat needed for the roof which, in the ordinary one-story building, is usually about three times as much as that

It is evident that through the action of the circulating outlets there must result an almost uniform temperature throughout the interior of the room thus heated. The quantity of the air withdrawn from the interior can easily be made so that a change of air takes place in the zone of occupancy every five to ten minutes. If the lower inlet openings are placed near the floor, about 2 feet from the floor level, the suction

by a saw-tooth roof, the roof being constructed of 2-in. wood planking with a $\frac{1}{4}$ -in. felt insulation and a five-ply felt and tar covering. The skylights are of steel and double glazed, the floor has a 9-in. concrete base. The lowest and highest parts of the roof were 12 feet and 23 feet respectively, above the floor level. The air was introduced 9 ft. and withdrawn 2 feet above the floor; the temperature of the heated air was 130 deg. F., that of the air discharged 98 deg. F., and the quantity of the air withdrawn through the outlets was about equal to that of the hot air supplied. When the lower intakes of the outlets were open, the temperature differences at points 3 ft. and 14 ft. above the floor were from 1 deg. to 3 deg. F., with the lower openings closed the differences were from 5 deg. to 8 deg. F.

Larger Quantities of Air Discharged at Lower Temperatures

The heat losses through the roof will be the less the smaller the difference is between the temperature immediately beneath the roof and the outside temperature. The minimum of heat losses will be obtained if the temperature of the air near the roof on the inside is equal to that in the zone of occupancy. It is clear that a further drop of temperature in the upper levels is not desirable as this would cause down drafts of cool air into the zone of occupancy. The upper layers of air should be even somewhat warmer than the lower ones.

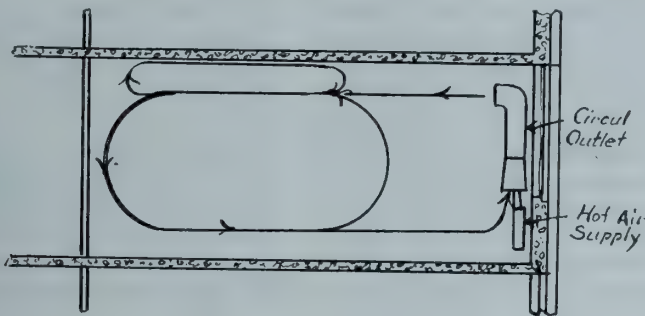


Fig. 2.—Course of air in ordinary room with circulating outlets.

needed for the floor and zone of occupancy, passes through the latter and is liable to create locally considerable overheating of the zone.

Another manner of heating the roof is by providing radiators for the roof independently from those needed for the zone of occupancy. This way is wasteful in first cost and usually causes overheating under the roof and consequently large heat losses.

A fourth way finally of heating the roof would be to distribute a large quantity of moderately heated air in the interior, spread out horizontally and evenly as possible. If the air would be distributed above the zone of occupancy and if part of that air could be made to traverse the zone of occupancy and the zone near the floor, then the most economical and the most agreeable system of heating the roof and interior would have been found.

This is exactly what the new system does. The hot air, coming from the heating apparatus, is mixed with a quantity of moderately warm air from the interior, the resulting mixture, the temperature of which is less than 100 deg. F., even in extreme weather, is discharged horizontally, by means of diffusers, so as to cover the entire floor area. The large quantity of air discharged through the outlets, mixes rapidly with air of the interior, thus further reducing its own temperature. The resulting numerous currents of warm air rise slowly to the roof, intercept the currents of cooled air flowing downward, strike the roof at slow velocity and at low temperature, reduce the temperature losses through the roof to a minimum and create in the upper zone of the interior uniform conditions of temperature and air distribution. At the same time, part of the air mixture discharged through the outlets is drawn into the lower openings of the latter and thus forced to pass through and heat the zone of occupancy and particularly the zone near the floor.

from the outlets will draw in at first the layer of air within this zone. Ordinarily, when the system is started this air will be several degrees lower in temperature than the upper layers of air and the outlets will remove at first this cold air near the floor before they will draw on the warmer and lighter air of the upper levels. When the cold air near the floor has been removed, the air from the upper levels will be forced down and a continuous circulation of

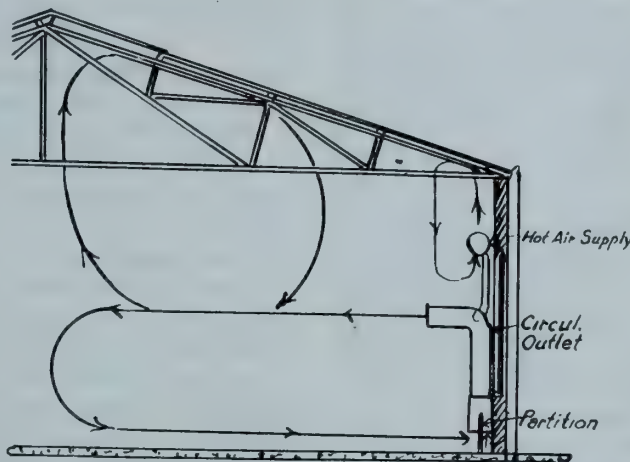


Fig. 3.—Course of air in large interiors with circulating outlets.

warm air from the upper to the lower levels of the interior will take place. As the air which is forced down from the upper levels has no possibility of losing any of its heat, it is evident that within a short time after the system has been started the temperatures at the upper and lower levels must be practically uniform.

Theory Borne out in Practice

Actual measurements of temperature in a foundry, in which circulating outlets of the type illustrated in Fig. 1 were installed, have shown the correctness of the above contention. The building covers an area of 170 x 250 feet, is covered

It is interesting to investigate how small a rise of temperature in the heated air is sufficient to make up the loss of heat through a roof and what air quantities are needed. If we take for instance, a 2-in. plank roof with a five-ply tar and felt covering, we find that the heat loss would be 0.25 B. T. U. per square foot of roof per degree difference in temperature per hour. At an inside temperature under the roof of 68 deg. F., and an outside temperature of zero the heat loss per hour would be 17.00 B. T. U. If we now assume a drop in temperature of only 3 deg. F. in the air of the interior through the cooling effect of the roof, then we would

need 312 cu. ft. of air per hour at 68 deg. F. to heat 1 sq. ft. of roof surface. If we take the heat loss through the floor as one third of that through the roof, and if we further assume that one outlet covers a floor area of 1,000 sq. ft., then we find that 6,933 cu. ft. of air at 68 deg. F., would be needed per minute to heat the floor and the roof. The temperature under the roof could then not be higher than 68 deg. F., and the loss of heat through the roof and floor would bring the temperature of the air to 65 deg. F.

In practice it has been impossible hitherto to supply such large quantities of air because it would make the heating apparatus and the duct system much too large and expensive. Assuming in the above instance an outlet velocity of 1,000 ft. per minute, one outlet alone would require a 36-in. pipe and a building of 300 x 200 sq. ft. of floor space would need 418,000 cu. ft. of air per minute for roof and floor alone. In actual present practice the air would be delivered to the building probably at a temperature of 140 deg. F. and the quantity of heated air required would be 18,900 cu. ft. per minute.

Fig. 4 shows the quantity of heated air in the above example decreases as the temperature rises. We find that, while the quantity of air needed at a temperature of 140 deg. F. is 18,900 cu. ft. per minute, it is twice as much at a temperature of 100 deg. F. then it rises rapidly so that at a temperature of 80 deg. F. the air quantity is already about five times, at 68 deg. F. about 25 times that for a temperature of 140 deg. F.

It is, however, not necessary to make the difference between the inside temperature and the temperature of the discharged air as small as 3 deg. F. because the heated air will to a certain extent, depending upon the form of the outlets and the discharge velocity of the hot air, mix with the air of the interior, and, therefore, have its temperature reduced. However, it is plain that the lower the temperature of the discharged air, the closer the ideal conditions, outlined above, will be approached.

With the circulating outlets we can get pretty near to those ideal conditions. If we, for instance, assume that the air be heated to 140 deg. F. and that we draw from the interior about three times the quantity of the heated air, a ratio which can, by proper design of the outlets, be obtained without difficulty, then we deliver the mixed air into the interior at a temperature of 81.8 deg. F. The quantity of mixed air for each outlet in the above example would then be 1,270 cu. ft. per minute that for the entire building 76,200 cu. ft. per minute; the diameter of the individual outlets would be 16 in. Considering that this quantity of air mixes itself again with the air in the room, we can reduce by means of the circulating outlets the temperature under the roof practically to the minimum desirable.

Of course, the circulating outlets will require additional first costs and additional horse power in the blower, but it will be shown later that these are by no means prohibitive and will make the system cheaper if we consider the saving of heat and the additional advantages resulting from the draftless circulating of the air through the zone of occupancy and the uniform heating of the interior.

From the above it is evident that the use of the circulating outlets effects in itself a saving of heat. Furthermore the circulation of air from the upper to the lower levels acts as an almost instantaneous indicator as to the proper quantity of heat necessary for the building under the varying conditions of outside temperature and other influences. If either too much or too little heat is supplied the temperature in the zone of occupancy rises or falls quickly and the

every 17 minutes. When the circulating outlets were put in place they withdrew from the zone between the upper and lower openings about the same quantity of air from the interior as that of the hot air supplied and effected a circulation of air in the zone of occupancy once in every 6 minutes.

Obviating Drafts in Zone of Occupancy

A special feature of the circulating outlets is that their discharging and their recirculating action takes place without causing drafts in the zone of occupancy. In hot air heating and ventilating systems hitherto installed, the common method of discharge into the interior is either to blow the air from outlets which are placed high above the zone of occupancy, downward into the latter with velocities up to 1,400 ft. per minute or else to carry the discharge pipes to within three feet of the floor and to discharge the hot air at low

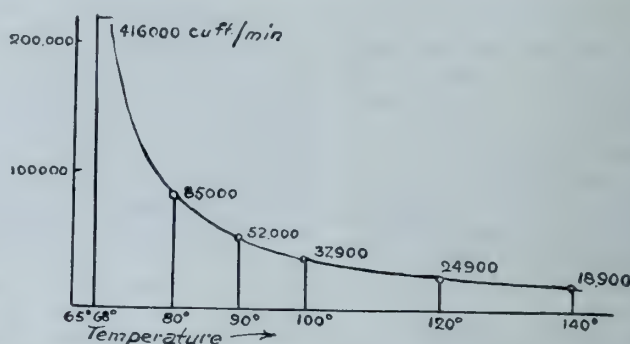


Fig. 4.—Decrease in quantity of heated air required with rise in temperature in a given case.

supply of heat can be regulated accordingly. This is especially easy in an air heating system where the shutting off or adding to the supply of steam in the heating apparatus makes itself quickly felt in the temperature of the hot air delivered.

As the quantity of air drawn from the interior can be made several times the quantity of the hot air supplied, it follows that a very effective circulation of air can be created in the zone that lies between the intake and the discharge openings of the outlets. This circulation is absolutely positive; if the mixture of air is introduced above the zone of occupancy the greater part, in practice one-half or more of that air, has been withdrawn from the zone of occupancy. For this reason a rapid change of air must take place in that zone. Depending upon the number and location of the outlets the circulation of air can be made more effective than in any other ventilating or heating system on account of the large quantities of air moved. For instance, in the saw tooth building mentioned above. (see Figs. 1 and 4). in which ordinary outlets discharging directly into the zone of occupancy, were replaced by circulating outlets the circulation of air in the interior as originally calculated to take place once in

velocities. With ordinary outlets there is no other way of bringing the heated or fresh air into the zone of occupancy. In both cases hot and cold drafts in the zone of occupancy are unavoidable, no matter how the outlets are arranged or what the velocities are. Moreover the full quantity of heat needed for the building is carried into the zone of occupancy creating there areas that are overheated.

With the circulating outlets these disadvantages of air heating and ventilating systems are avoided. The air is discharged horizontally above the heads of the occupants, and a large quantity of warm air is forced from the upper levels into the zone of occupancy through the circulating action of the outlets at an imperceptible velocity and in absolutely positive manner. Thus large quantities of warm or fresh air are moved through that zone without causing the least discomfort to the occupants. In the saw-tooth building mentioned above (see Figs. 1 and 4), the discharge openings were 9 ft. above the floor, the air was discharged horizontally or even slightly upwards; there was not the slightest feeling of draft in the entire room and every square foot of floor space could be occupied by the workmen without paying any attention to the warm air inlets.

Conducting "A Business Enterprise"

Outline of Some Simple Records That Give The Merchant Information Vital to the Successful Conduct of Retail Business—Growing Disfavor for Merchants Who Neglect Business Records

(From the National Association of Credit Men)

THE merchant should know, and not guess, that the price at which he sells an article, or the price for which he contracts to do work, will cover the—

Exact cost of the article; or the
Exact cost of the material and labor used in the contract;

The proportionate part of the cost of conducting the business which the article or the contract should bear;
With a little for his living; and
Something besides.

He should again know, without simply estimating, whether all his sales or all his contracts at the end of any given period of time equal the first three items as above cited.

If they equal the cost as indicated, then there is no profit.

If they exceed the cost, then a profit is a reality.

No merchant can be easy in mind and fair to his business creditors or bank, or even the business public, who cannot tell whether or not his business enterprise is making a profit.

Are You Making a Profit ?

This can only be done by keeping certain records—commonly known as Books of Account.

Without books of account, a merchant unconsciously goes on the rocks or loses the chance of making his business profitable.

Why should he wait until the time when he finds he cannot pay his bills and hasn't assets enough to meet his liabilities?

Why should he, when certain simple records would give him information any time?

How can he tell what profits the business is making, even though he is meeting his obligations, unless he keeps certain records.

With this straight-from-the-shoulder message to all merchants not keeping records or books of account; and

Believing that they will realize the fact that present conditions will not permit a Business Enterprise to run without such records,

It is our earnest effort to make certain recommendations in the way of a general outline of very simple and easily kept records, which we shall call "books of account."

Our great desire being to render business service and to put sound props under every business enterprise.

Can Books Tell ?

The transactions that go to make up a day's work in any business develop

either a profit or a loss. If a profit, it finds its way into capital or net worth—the net worth is increased. If a loss, the net worth is decreased.

Starting at the very beginning, then, a record of the merchant's investment in the business, his net worth or Capital (as it is termed) is necessary. Such a statement of net worth we will construct right here.

We begin with Assets, which term covers property or accounts of value such as are listed herewith and numbered from 1 to 6. The total of these Assets in dollars and cents, when compared with the total amount of Debts, determines whether a Business Enterprise is able to pay its debts and is therefore what we will call Solvent, or is unable to pay its debts—and is Insolvent. There should be at least \$2 of Assets to every dollar of Debts.

Liabilities are the opposite of Assets (see items numbers 10 to 14), and to play the business game right, the object is to keep the Liabilities less than the Assets. The greater the difference between them, the greater the investment—therefore the success of the business.

ASSETS

1. Cash on hand and in the bank.. \$
2. Merchandise on hand
3. Accounts owing from customers
4. Furniture, fixtures, etc.....
5. Lands and buildings
6. All other items of value not in above classification

Deduct from this

LIABILITIES

Amounts owing for

10. Merchandise
11. Borrowed money
12. Items of expense accumulated and unpaid
13. Lands and buildings (mortgage)
14. All other debts not included in above classification

Total Liabilities

Net Worth, Capital or Investment

So, the first thing that books of account tell us is: What is invested in a business at the beginning.

The next step is to make the investment earn money by the carrying on of business, whatever it may be, for the purpose of making a profit. We can increase our net worth by adding to our income. We add to our income when we make a profit on what we sell. So

a merchant must construct his accounts so that they will show in addition—

1. Income;
2. Expenses;
3. Net profit or Net loss.

Income is what flows into the business, and the word itself suggests something that is moving and not stationary.

Opposite this is expense—the outflow of a business, and this term also suggests things that are in action and not stationary.

To arrive at the net profit or the net loss, it is absolutely necessary to record every transaction; so, we will group the classes of income and group the classes of expense.

INCOME

20. Profit on sales
21. Profit on contracts
22. Interest on bank balances
23. Discount on merchandise purchased
24. Items of income not above classified

Total Income

EXPENSES

30. Rent (fair rate, if owner) .. \$
31. Wages paid (not charged on contracts)
32. Allowed to merchant for his service (at fair rate)
33. Insurance on merchandise, fixtures, etc.
34. Interest on borrowed money.. \$
35. Delivery expenses
36. Taxes of all kinds
37. Fuel and light
38. Charity
39. Bad Accounts
40. General expenses not included in above

Total Expenses

When deducted from Total Income gives Net Profit, or Net Income

This net income, to the penny, will be reflected in Assets and Liabilities. Every penny of profit will either increase the Assets or decrease the Liabilities therefore decreasing the net worth. Every penny of loss will either decrease the Assets or increase the Liabilities, thereby decreasing the net worth.

Any business, no matter in what line of effort or what is the size of its capital, is subject to this principle.

Having explained how books of account—given names divided into four classifications: Assets, Liabilities, Income, Expenses—indicate whether a business is making a profit or a loss, we will now endeavor in a similar fashion

ion to offer some idea of how books of account (of a very simple kind) can be secured by a merchant and kept so he can tell accurately, with the least possible effort, what are the Income and Expenses, the Assets and Liabilities, the Profit or Loss of his business enterprise.

The Books of Account

Having reached in our development of the book-keeping process—or rather of the books of account that are needed in connection with the man's business—the kind of facts to record as to what happens from day to day, month to month, or year to year, we will say.

In Illustration

When the merchant buys merchandise and it is delivered to him, he charges to the business enterprise on the books of account, and credits the person from whom the goods are bought. When the merchandise is sold, credit at cost is given to merchandise, and the profit is credited to profit on sales. When a merchant puts cash capital into the business, he charges cash and credits the investment; and when payments are made for expenses incurred, he credits or reduces his cash and charges the items paid to various accounts involved.

The books of account, therefore, form the connecting links between a merchant and his business enterprise.

The old and customary form of book-keeping is what is known commonly as "Double Entry," involving cash book, cheque book, purchase book, sales book, journal, sales ledger and general ledger. When a merchant is in a position to keep such books, or can afford to hire a book-keeper for the purpose of keeping them, there are none better.

For some enterprises, however,—and it is to these that our present message is addressed—we will retain the idea behind double entry book-keeping, namely, a system of balances, dollar for dollar, on each side of the account; but endeavor to do it with a few simple books of account.

After thinking the matter over with the utmost care, we are recommending principles and methods which any merchant can apply, that can be embodied merely in two books—the Cheque Book, and the Entry Book ruled as a double entry ledger, which will serve the purpose of a ledger and a journal. These two books, with files for bills and other papers, will be sufficient for the business enterprise which we are aiming to reach.

The Entry Book or ledger should be divided into five parts—

- Assets 1st.
- Liabilities 2nd.
- Income 3rd
- Expenses, 4th
- Journal, 5th

The merchant will keep these in mind while we explain the next step in the book-keeping system.

The capital investment is to be determined as already outlined.

Cash on Hand and in Bank (Account No. 1.)

This figure, when obtained, is entered on the left side, or debit side, of the ledger sheet and placed under the asset section of the ledger.

Merchandise on Hand (Account No. 2.)

Take inventory of the stock on hand, that is by putting down each item of stock on a sheet at its cost price, if that cost price is at or below the figure at which the article can be duplicated; or at its exact market value, if the market is less than the price that was originally paid. After taking down all the items of merchandise, then the total is entered on a ledger sheet on the left or debit side, and placed on the asset section of the book.

Accounts Owning From Customers (Account No. 3.)

Each customer's account is by name entered on a separate sheet, and the amount owing and collectible from each placed on the left, or debit side and placed under the asset section of the ledger.

Furniture, Fixtures, Etc. (Account No. 4.)

A fair valuation of these items should be made and the total of them all recorded under this caption on the left side of the ledger sheet, and also placed under asset section.

Land and Buildings (Account No. 5.)

If the merchant owns a store, warehouse, factory, or a plant, improved or unimproved land, a reasonable valuation is placed upon it, and the total thereof is entered on a ledger sheet, left or debit, side, and placed under the asset section of the ledger.

All Other Items of Value Not Classified In Preceding Accounts

These accounts should be itemized and the total entered in this account on the left side of ledger sheet, and placed, like the others, in the asset section of the ledger.

The left side of the ledger is always the debit side, the right side is known as the credit side.

- We debit what we have.
- We credit what we owe.
- We debit our expenses.
- We credit our income.

By entering the items 1 to 6 on the left side, the merchant has charged his gross investment in the business on the books.

We are ready now to take up the second section—the

Liabilities Section

From the gross investment, the liabilities must be deducted as shown to determine the merchant's net investment.

Amount Owning for Merchandise (Account No. 10.)

The total owing by the merchant to each creditor is listed on a separate ledger sheet on the right side, and

Amount Owning for Borrowed Money (Account No. 11.)

The total when accurately determined is listed on a ledger sheet on right side, and placed under liability section of the ledger.

Amount Owning for Items of Expense (Accounts No. 12.)

If, at the time this net worth is being determined, there are any unpaid expense bills, the amount owing to each creditor should be listed on a separate sheet on the right-hand side, and filed under the liability section.

Amount Owning on Land and Buildings (Account No. 13.)

The amount owing, usually in the form of a mortgage, is placed on the ledger sheet, and placed on the right hand side thereof, and also filed under this liability section.

Amounts Owning to All Others Not Included in Accounts 10 to 13 (Account No. 14.)

This account is self-explanatory. If there are any amounts owing, they are to be placed on the right-hand side of the ledger sheet, and filed as liabilities.

Net Worth, Capital, or Net Investment. (Account No. 15.)

There must be one account in the liability section that is headed as above—the difference between all that is listed in the asset section and all that is listed in the liability section. That exact difference constitutes this item, and the amount, when determined, is placed on the right-hand side, or credit side of this account—showing the exact net investment in the business enterprise.

It is a simple matter at this point to prepare a financial statement, as has been outlined, which will give the true financial condition of the merchant.

We will now consider the third section—the

Income

Just as with the assets and liabilities, accounts should be opened in which will be recorded the transactions arising out of the operation of the business.

Profit on Sales (Account No. 20.)

The profit on sales can be easily determined by consulting the inventory, if the goods were inventoried; if purchased since inventory taking, then by consulting the bills. The difference between the price paid and what it is sold for, is the profit on the sale. This profit is credited to this account by entering the sum on

the right side, and placing it in the income section. If the business is such that the items are too numerous and it is possible to take an inventory frequently—then the profit on the sales is determined as follows:

Stock on hand beginning of period	\$
Add stock purchased during period	\$
Deduct inventory end of period	\$

Difference is cost of goods sold	\$
Sales during period	\$
Deduct cost of goods, sold as above	\$
Difference is profit on sales	\$

Profits on Contracts

(Accounts No. 21.)

When a contracting business is carried on, the profit on the contract—which is the difference between the cost of the operation (whether in material, labor or other expenses) and the price charged the customer—is credited on the ledger sheet on the right-hand side, and placed under this income section.

Interest on Bank Balances

(Account No. 22.)

This is the amount which your bank allows for average cash balances. It is placed on a ledger sheet—it is credited on the right-hand side under this section, from your cheque book.

Further Building For Montreal

Montreal.—The Montreal Board of Protestant School Commissioners will build a new school, work to be commenced very shortly. The contract for the new building, which will be located on St. Urban Street, near Rachel Street, has been awarded. The new building shall be ready for June 1st, 1922, so that it will be ready for pupils when the school term commences in September of 1922.

The contract was awarded by the Board to James McGregor & Company, General Contractors, the price being \$366,877. The contract for the plumbing the heating was awarded to the Garth Company, the price being \$84305. The wish was expressed by the board that contractor would endeavor as much as possible to give employment to returned soldiers. Pleasure was also expressed that as the work is to get under way shortly it would mean some alleviation of the unemployment in the district.

AIKINS SANITARY MOIST AIR HEATING SYSTEM

The construction of the Aikins Sanitary Furnace is stated to be a distinct departure from anything attempted in the heating line. Armco iron is used throughout in the construction except for

SOME EFFECTIVE ARGUMENTS FOR PLUMBING

It has long been submitted by recognized authorities on the subject that the rate of infant mortality in a given district is regarded as the most reliable test of the sanitary conditions existing throughout that locality.

Investigations in this connection undertaken by Research Bureaus have established the following facts.

1. That in homes where water is piped into the house, the infant death rate is around 117.6 per thousand.
2. Where the water has to be carried into the house from outside, the infant death rate is around 198.2.
3. That the infant death rate is 72.6 in homes where bath tubs are found. While it is more than double or practically 164.8 where there are no bath tubs.
4. In homes where water closets are installed, the infant death rate is 108.3, and in homes where there are only yard conveniences and no water closets the infant death rate is 169.3.
5. That in homes where city water is available the infant death rate is 132. per thousand and where city water is not available the death rate was 148.4 per thousand.

the doors, frames and smoke collars, which are cast iron. The joints are boiler riveted and therefore gas and dust tight, a result which cannot be obtained where a combination of cast iron and steel is used. The construction of this furnace consists of a steel fire pot, brick lined, and combustion chamber without flues and therefore self-cleaning. The fire burns on a refractory cement bottom eliminating the use of grates. An important feature claimed for this is that it allows the removal of ashes without generating dust, and it also allows the makers to introduce into the lower fire chamber a quantity of water equal in weight to the amount of fuel consumed

daily. The water is regulated by a small pet cock connected to the water service and the action obtained from using the water is that same is gradually absorbed by the ashes and converted into super-heated steam which is composed of oxygen and hydrogen, the oxygen facilitates combustion, and the hydrogen gases convey the heat from the fire to the combustion chamber, the surface of which transmits it to the heating chamber. The construction is adapted, it is claimed, to any kind of fuel, and especially coke. The Aikins Sanitary Furnace will shortly be on the market and is being manufactured by Beeby & Aikins, Ltd., Ottawa, Ont.



TRY ANOTHER KEY

Wanted At Once

THE NEED OF THE HOUR IN THE PLUMBING IS SALESMEN—ENERGETIC, DETERMINED

—MEN who “think” sales—who see in all old homes not just houses but real live prospects for modern plumbing-ware.

—MEN who dig for prospects—who endeavor at all times to stimulate demands for their wares by creating a desire for them in the minds of all they meet.

—MEN who personally interview all prospects—and point out the need for modern enamelware in the home—its sanitary advantages, the beauty of its appearance, the quality of workmanship used in its construction—its trouble-proof qualities.

*To Sanitary Engineers who can and will win
its dollars and cents reward, each
better business, building on the*

PORT HOPE ENAMELWARE Enables the Dealer to gain the
knowledge that they are unsurpassed in quality

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office
405 TRIBUNE BUILDING

SALESMEN

ING AS IN ALL OTHER BUSINESSES
RMINED, RESOURCEFUL MEN

—MEN who believe that modern plumbing ware is an investment that yields real dividends, in convenience, in comfort, in pride of ownership—and are capable enough to impart their ideas to others.

—MEN who realize that despite present fluctuations in wages, the general standard of living among all classes is higher than ever before—and will take advantage of the resulting increased market for their goods.

—MEN, above all, who will show that present day plumbing prices are right—even cheap as compared with prices of former years.

*These requirements each month will yield,
will witness the growth of a bigger
foundation of past achievements.*

*his fixtures with all confidence — secure in the
manship — unexcelled in beauty of design.*

Mfg. Company, Limited

Head Office:

1012 ROYAL BANK BLDG., TORONTO

Montreal Office:

604 SOUTHAM BLDG

Advertising on a Co-operative Basis

How Merchants on a Street That Was Formerly Considered a "Slum" Street in St. John, N.B., Changed It to a Commercial Thoroughfare of Some Importance—Uses Page Advertisement Each Week

ST. JOHN, N. B.—What was formerly a slum street in St. John, N. B., now is rapidly becoming one of the most prominent business thoroughfares in this city.

This wonderful change has been made in less than six months, owing to the aggressiveness of about thirty merchants, who have opened up an advertising campaign, on a co-operative basis, boosting their street by weekly full page advertising in one of the local newspapers. Brussels street, St. John, N. B., six months ago was a rough unpaved thoroughfare, and used only by teams compelled to go down it on busi-

ness, the main traffic following the course of the paved streets. The city is just completing the paving of this street, and the residents, realizing the possibilities of increased traffic, sought to make the citizens forget the old slum street, so petitioned the city council to change the name from Brussels street to Prince Edward street. This change of name has been made, and now the residents are putting the street on the map. Some time ago the citizens of St. John were all made to sit up and take notice by a large flaring full page advertisement, announcing that Prince Edward street was the Hub of the city,

and St. John's new commercial thoroughfare, the Eastern gateway of St. John.

Twenty-six merchants announced that "United we stand for co-operation, enterprise, progress and prosperity. We have faith in our street and our city." The committee in charge of this advertising campaign announce that it is to be carried on for a year, using a full page space each week, paid for by all merchants whose names appear. Buildings are being painted, stores are having new fronts put in, and the whole street is beginning to assume a spic-and-span appearance. Every resident is a booster for his street, and Prince Edward street is the talk of the town.

WILL HAVE WATER WORKS

Richmond Hill, Ont.—Something of a record will be created here when a complete waterworks system, contracts for the construction of which have been let at an aggregate cost of \$88,000, is installed. The plans call for a dam to be built in the creek on the west side of the town, which, when completed will form a storage reservoir of 1,000 feet long by 300 feet wide, containing 8,000,000 gallons of water. For the size of the town this will probably be one of the largest reservoirs in existence.

Following are the contractors: Pump-house, filtration plant, dam and bridge, Reid and Somers, Guelph; steel tank, Canadian Des Moines Co., Chatham; cast iron pipe, National Iron Corporation, Toronto; valves and hydrants, Drummond McCaul, Toronto; filter equipment, General Supply Co., Toronto; pumping machinery, Northern Foundry and Manufacturing Co., Sault Ste. Marie. The consulting engineers are Messrs. James, Proctor and Redfern, Toronto.

The system is expected to be in operation by Christmas.

STOVE INSULATION

Electric stove insulation discs and bricks have been found to be far more satisfactory when made from quartz, where formerly they were made from asbestos and porcelain. According to E. J. Woodburn, of Woodburn's Limited, Montreal, who has recently been experimenting and has now placed the new composition articles on the market, they will not break so readily and have a much greater heat resistance.

Woodburn's Limited have also been appointed sole Canadian representatives for a new electric resistance wire, which is being marketed among leading manufacturers of electrical appliances. Wigam & Co., of Birmingham, are the manufacturers, and claim this was used for years in the British army.

The Hub of the City:
Prince Edward St.
St. John's New Commercial Thoroughfare
Connecting Link Between the City and its Fastest Growing Suburbs.

<p>United We Stand for Co-Operation Enterprise Progress and Prosperity</p>	<p>The Eastern Gateway of St. John</p>	
<p>Walsh Bros. Groceries, Meats, Produce 112 HANMARKET SQUARE PRINCE EDWARD STREET</p>	<p>The O'Neill Company Pharmacy 109 Prince Edward Street, Cor. Richmond We carry a full line of Pure Drugs, Patent Medicines and Sundries; Toilet Articles, Stationery and Confectionery</p>	<p>WILSON'S Quality Meats, Groceries AT LOWEST PRICES 3 STORES Cor. Prince Edward and Lanes St. Phone M. 3185 Cor. Lancaster and Cornhill St. Phone M. 221</p>
<p>R. L. Dibblee 265 Prince Edward Street General Contractor and Builder Telephone M. 333-31</p>	<p>MRS. CAINE CRAIG 18 Prince Edward St. We have a full line of the Choicest Groceries, Produce, Fruits and Confectionery at the lowest prices. Telephone Main 8289</p>	<p>Printing "As You Like It" J. R. HOPKINS The Wayside Press 139 Prince Edward Street Phone 2539 COMMERCIAL and SOCIETY PRINTING Quick Service—Good Work</p>
<p>DOYLE'S Meat Market 151 Prince Edward Street Phone 4460 Try our case and you will call again</p>	<p>John Isaac 275 Prince Edward St. Meats, a price Horseshoe, a price Lamb, a price Pork, a price Butter, a price Eggs, a price Honey, a price Milk, a price Sausages, a price Canned goods, a price All kinds of groceries, a price</p>	<p>McDonald's Meat Store 113 Prince Edward Street Try our fresh and salt meats, hams and bacon, poultry and vegetables. We think we can satisfy you in both price and quality. Phone No. Main 1052 Special Values In Ladies' Clothing for the Month-End Parisian Clothing Store LADIES' CLOTHING SPECIAL OFFER We have a new line of Ladies' Apparel. Please come and see our new line of goods. J. TANZMANN, Prop. # 35 PRINCE EDWARD ST.</p>
<p>H. B. WHITENECT General Contractor and Builder Prompt Service. SAINT JOHN, N. B. Office—241 Prince Edward St. Phone 4540 Res.—78 Cornhill St. Phone 2978</p>	<p>Peoples Market BUDOVICH BROS. 29 Prince Edward Street Phone M. 1279 LOOK! LOOK! LOOK! The Lowest Prices in Choice Groceries for Friday and Saturday Choice Round Steak, a lb. . . . 28c Choice Sliced Steak, a lb. . . . 30c Choice Beef, a lb. . . . 25c Choice Pork, a lb. . . . 25c Choice Ham, a lb. . . . 25c Choice Sausage, a lb. . . . 25c Choice Corned Beef, a lb. . . . 25c All kinds of groceries and vegetables at lowest prices. Orders delivered to all parts of the city.</p>	
<p>Bevans & Baxter 238 Prince Edward St. Phone Main 2574</p>	<p>Levine's 81-2 Prince Edward St. One of the Oldest Shoe Stores in the City Prince Edward Street—the longest growing thoroughfare in the city boasts one of the oldest shoe stores in town. The store in which I am doing business has been a shoe store for over a half century. Just over a great sale is being held here. Your chance to save money on footwear is quality.</p>	<p>Lancaster Dairy 3 Prince Edward Street Purity Ice Cream MILK, CREAM, BUTTER, EGGS, ETC. Phone Main 8489</p>
<p>Campbell's Meat Market 41 Prince Edward St. Fresh and Salt MEATS Lowest Prices</p>	<p>The Park Drug Store We sell the Purest Drugs, Patent Medicines, Toilet Preparations, Stationery and Confectionery. Residents of East St. John and Glen Falls are Cordially invited to call. 118 PRINCE EDWARD STREET Telephone M. 3288. New Hymersham Supply.</p>	<p>Edward King 140 Prince Edward Street We sell the best quality of Groceries, Fruits and Confectionery at the lowest prices. GIVE US A CALL</p>
<p>W. J. McMillin Registered Druggist Haymarket Square Phone 3431</p>		
<p>H. G. Enslow General Hardware and Kitchen Utensils, Paints, Oils, Glass, etc. All kinds of Brantford Roofing Paper. No. 11 Prince E'</p>		

How the merchants on Prince Edward Street, St. John, N. B. co-operate to advertise using a full page each week.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Niagara Falls South, Ont.—Payne & Nesbitt, plumbers, have dissolved partnership, Mr. Payne continuing the business.

Montreal—Cusson & Bigonnesse, plumbers, have dissolved partnership. P. E. Bigonnesse continues alone.

TENDERS WANTED

Tenders will be called for the installation of a heating system in the new live stock arena. For the arena proper the estimated cost is \$95,000, and \$195,000, including the annexes.

DURO PRODUCTS TO BE MADE IN CANADA

It is now announced by the manufacturers that Duro products will shortly be made in Canada. They will be marketed under the name of Empire-Duro. This applies to the most popular sizes and types.

NOVEL MEANS OF ADVERTISING PIPES

With the stove and furnace pipe season near at hand, a rather ingenious method of advertising pipes, made up from galvanized sheets, was employed by G. C. Hunter, Tinsmith, of Hamilton, Ont., who constructed the name PIPES from the use of T's, elbows and straight lengths of galvanized pipe. The letters were about three feet in height and were placed on the sidewalk in front of the shop, resting against the shop window. Many passers-by were impressed with the novel means employed to remind householders that it was time to have the pipes attended to in their homes.

GAS ASSOCIATION CONVENTION

Optimism for the immediate future and a general revival of business activity for the industry is to be the keynote of the third annual convention and exhibition of the American Gas Association, the national organization of the manufactured gas industry, which will be held in the Congress and Auditorium Hotels, Chicago, November 7 to 12.

More than one hundred manufacturers will exhibit their latest gas-burning appliances and the business sessions of the convention will draw an audience of gas men estimated at 1500.

Reports coming into Association headquarters show that when the general business situation improves there will be a tremendous jump in the demand for gas service. The industry is now mak-

ing engineering and financial plans to meet this anticipated demand.

NEW WAGE SCALE

Hamilton, Ont.—The question of plumbers' and steamfitters' wages has between representatives of the employers and journeymen, a wage rate of 85 cents an hour has been set. A special meeting of local No. 61 was held, which was addressed by International Organizer John Bruce, Toronto. After about an hour's discussion the new wage scale which is a reduction of 5 cents an hour was approved. The 85 cents an hour rate, effective August 1, will hold until April 30, 1922.

HEATING COMPANY ASKED TO REMAIN

Chatham.—There is a possibility that the Chatham Steam Heat Company will be induced to remain in business during the coming winter season. A short time ago it was announced that the company intended to go out of business, owing to the fact that they have been losing money at the rates they have been charging for heat and the difficulty they had collecting their bills, owing to the necessarily interrupted service during the extreme cold weather.

At a meeting of the steam heat users, who include most of the business houses on King street, the proposition to take over the plant of the company and run it as a public concern was discarded and it was decided to circulate a petition, asking the company to continue in business and promising a rate which would net a fair profit on their investment. The steam heat users of the city regard this as more economical than the installing of individual furnaces, which in great number of cases would be a very expensive proposition.

WANT SEWERS

Agitation for a sewerage system through the district was supported by a large gathering, and after hot debate, at a meeting of the North Wychwood Ratepayers' Association. C. Cameron, who presided, declared that sanitary sewerage was necessary to put the district on a health basis.

Township Engineer Wynne Roberts outlined the York township comprehensive sewerage scheme, illustrated by lantern slides, explaining the proposed process. He stated that this scheme was probably the most comprehensive in Canada.

PLUMBING AND DRAINAGE

London, Ont.—The condition of the dwellings erected on Pine Lawn and Garfield avenue for the London Housing Commission submitted by Provincial

Housing Inspector E. W. Hammett and Building Inspector A. H. Piper was discussed.

The report points out defects in drains etc.

Mr. McBride, however, maintains that the houses have not yet been taken over by the commission, and that as the inspectors "went over the houses with a microscope" any defects are minor, and can be eliminated at little cost.

The commission did not deal with the reports, but decided to allow Architect McBride sufficient time to prepare a report explaining the alleged defects.

CONTRACTS AWARDED

Contract at \$53,700 for construction of filtration plant for waterworks system costing \$300,000 for Council is awarded to R. T. Smith Construction Co., Ltd., 27 Hillside Ave., Montreal.

London, Ont.—Contract for sewage pumps and electrical equipment for City, which was placed with Northern Foundry & Machine Co., Sault Ste. Marie, Ont. has been cancelled and awarded to the London Concrete Machinery Co., Ltd., Cabell Ave., London.

Ottawa, Ont.—City Council awarded general contract for vitrified clay segment sewer blocks or reinforced concrete pipe to Dominion Locq Joint Pipe Co.

IMPROVE DUNNVILLE WATER WORKS

Dunnville, Ont.—A communication from Dr. J. W. S. McCullough, Chief Officer of Health, set forth that the Provincial Board of Health had approved of the plans of the Public Utilities Commission for the improvement of the waterworks system by extension of the filtration plant and additions to the pumps, at an estimated cost of \$60,000, and for extensions to the distribution system, to cost \$10,000. The Board promised to confirm any by-law that the council may pass to authorize the expenditure of this sum without requiring the sanction of a vote of ratepayers.

O. E. Wilson said that the Utilities Commission had the verbal assurance of the Provincial Board of Health that the town would be compelled to improve system according to the plans that had been approved. But if the Council insisted on the ratepayers being consulted they had two by-laws prepared for submission to them. His idea, however, was that this expense might be saved.

Mayor Shirton announced it as his own view, in which he believed all the members of the council concurred, that they should not assume the responsibility, but that the question should be referred to the ratepayers. He recognized the possibility of the Provincial Board of Health forcing the town to carry out the proposed work.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PPRICE re-adjustments in plumbing and steam-fitting supplies continue to attract noticeable attention. Many revisions to a lower level are again evident, these current changes covering such products as corrugated sheets; range boilers; Canada, charcoal tin, and terne plates; copper and brass tubing, rods and sheets; iron piping; wire nails; standard compression work; compression bath cocks; standard flat way stop and waste cocks; quick opening basin cocks; wrought couplings and nipples; galvanized shingles and steel ceilings; stove bolts; iron rivets and burrs; hammers; Victor hack saw blades; Trimo wrenches; cement, in bags, and scrap brass.

Price readjustments are quoted in some quarters on enamelled ware, while revisions are also given on closet combinations, tanks and bowls. A

firm undertone continues in the cotton waste markets, but no change in quotations has yet been made. The size and attractiveness of the prospective order evidently governs the current prices on boiler tubes; while the sluggish condition in the scrap material markets still continues. General depression is the prevailing tone in ingot metals, but a more optimistic viewpoint is now developing in production circles that these have reached the bottom of stagnation. Trade activity has commenced to revive with the increasing demand that has recently appeared in several lines, and many reports indicate a marked improvement over the dull summer months, with the Fall period being looked upon as an opportunity for a brisker volume of trade and a corresponding betterment in general business conditions.

MONTREAL MARKETS

MONTREAL, Sept. 26.—Price recessions continue to feature the markets for plumbing and steam-fitting supplies, and a further change in the discount on enamelled ware, also a new lower list on corrugated sheets, are two most prominent changes for this issue. Enamelled ware is now quoted less 30 per cent., and although this brings the net prices to a higher level than was prevailing during the recent series of price shading, it leaves present quotations slightly lower than existing prices before dealers were apparently willing to sell at below replacement costs. Corrugated sheets will now sell for approximately 10 per cent. less through the issuing of the new list. A slight reduction is made in cement prices, in less than car lots, and standard compression goods now have new lower prices. Quotations on iron and steel are now given with a range as some jobbing houses are quoting a slight reduction in practically all lines, while others are maintaining the higher former prices. Trimo wrenches and Victor saw blades are two lines of tools priced lower.

NO FURTHER CHANGE IN SOIL PIPE

Montreal.

There has been no further change in the prices and discounts on soil pipe and fittings since the revision to lower levels two weeks ago through the increasing of discounts. A steady movement is reported among the jobbing houses, although not up to sales of last year at this time. Following are the discounts;

SOIL PIPE	
2 and 3 in.	35 per cent.
4 inch	40 per cent.
5 and 6 inch	40 per cent.
8 inch	Net
FITTINGS	
2 to inch fittings	50 per cent.
8 inch fittings	Net list.

COTTON WASTE PRICES STILL UNCHANGED

Montreal.

Quotations on cotton wastes and wipers remain at unchanged figures notwith-

standing the revisions to higher prices on practically all other cotton products. The market is undoubtedly firm, with higher prices altogether likely at any time, and according to one large jobber, it is surprising a new higher list has not been issued before now.

BOILERS AND RADIATORS FIRMER

Montreal.

No change is made in quotations on either radiators or boilers, but the market is now somewhat firmer. Classed in the heavier lines of iron and steel products, productive costs, such as labor and freight rates would necessarily have to show a reduction before any marked decline in prices on either radiators or boilers, could be announced. On the other hand, this week shows an advance in the United States markets of from 7½ to 10 per cent, and while this has no direct bearing on the Canadian

market, it assists toward a firmer undertone. Following are list prices and discounts;

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 10 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

WROUGHT PIPE AGAIN EASIER

Montreal.

A steady movement continues in wrought iron and steel piping, orders being of a small and sorting character. Sales are said to be somewhat better in the past two weeks and it is thought a good trade will be had during the fall months.

Although there is no indication of lower prices being announced at present, the market is now easier and it is worthy of note that prices at the United States mills show a reduction. Usually it requires some little time before a revision of this nature reflects on the local market, but it would not be surprising if a new list, containing lower prices, is issued in the near future.

SCRAP MARKET SHOWS SLIGHT IMPROVEMENT

Montreal.

With quotations on waste materials nominally changed, there is a slight improvement noticed in the market. Dealers have experienced such a prolonged dull period that they are placing little faith in the small increase of business, and consider it only temporary. However, with a spell of open weather before the winter sets in, there should be a more active trade, coupled with a continuance of more activity in the steel market generally. Following are present nominal quotations:

Automobile tires	0 75
Rubber shoes	0 02½
Yellow brass	0 05
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04
Lead, tea	0 02½
Light copper	0 07¾
Heavy copper	0 10½
Wrought iron, R. Rd., No. 1 per gr. ton	10 50
Malleable scrap (ton)	10 50
Pipe scrap (ton)	7 00
Heavy melting steel	7 50
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	20 00

STANDARD COMPRESSION GOODS AT REDUCED PRICES

Montreal.

Certain lines of valves and bibbs, standard compression goods, show a reduction in price through the increasing of discounts. Standard compression work is now quoted less 43 per cent, flatway stop and waste cocks 46 per cent. The market for these goods has been rather unsettled in recent weeks and with the lower prices now given, a settling effect is looked for. Other lines remain unchanged, with the following discounts quoted:

Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	46%
Roundway stop and waste cocks, standard	37%
Brass steam cocks, standard	10%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%
Sinks, roll rim 18 x 39 in.	\$23 00
Price List No. 53.	Sept. 22, 1921.

TRIMO WRENCHES REDUCED IN PRICE

Montreal.

Through an increase in the discount, Trimo pipe wrenches are lowered in price. They are now quoted at less 42½ per cent.

PRICES ON LEAD GOODS HOLD

Montreal.

All lines of lead and zinc products are unchanged in price with a steady volume of business reported by dealers. With the improvement noted in metals on the primary markets a few weeks ago, the undertone of the finished products was also more promising, but with these metals again falling to easier prices lead goods are not in as healthy a state. Following are present prices;

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 10½
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21*
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

NO CHANGE IN FITTINGS

Montreal.

Discounts on the various lines of pipe fittings are holding unchanged since the advance in malleable fittings two weeks ago. Sales are still of a small and sorting character but very numerous. Following are the prevailing discounts:

FITTINGS—	
Cast iron fittings	20%
Bushings, cast	30%
Bushings, malleable	25%
Flanges	27%
Plugs	25%
Flange Unions	20%
Maleable Unions	40%
Dart Unions, black	29%
Do., galvanized	8%
Nipples, ¾ to 4" close and short	40%
Do., long	50%
Do., 4½ to 8" close and short	30%
Do., long	40%
Couplings, 4" and under	20%
Do., 4½" and larger	Net list
Pound Goods—	
Class A	Blk. 0 58 Galv. 0 78
Class B	0 24 0 34
Class C	0 16 0 24

CEMENT QUOTATIONS REDUCED IN SMALLER QUANTITIES

Montreal.

Quotations on cement, in less than car lots, show a slight reduction and \$1.09 per bag f.o.b. yard is now quoted, the former price being \$1.12. Car load lots remain unchanged. The feeling existent among the trade that lower cement prices should be given as a stimulus to building operations is slowly becoming realized, the reduction being of a minor nature up to the present. There is a steady volume of business recorded, building requiring a fair amount at this time. Following are the revised quotations:

CEMENT—	
Car load lots—400 to 1,000 bag cars—	
Per bag, f.o.b. cars	\$0 98
Per bag, delivered	1 05
Less car lots—	
Per bag, f.o.b. yard	1 09
Per bag, delivered	1 19
Less 5 per cent.	
Rebate 20 cents for empty sacks.	

SHEET PRICES HOLD AT RECENT REDUCTIONS

Montreal.

Sheet prices are unchanged, the many lines holding at the recent reductions. Black and galvanized sheets still show the range in quotations, covering the variation among the different jobbing houses, and while slight reductions are announced in some quarters they are covered by the following list.

Tin plates, Canada Plates and Terne Plates are moving quite unsatisfactorily at present, the fall requirements in stove and furnace work requiring supplies. Following are the prevailing prices:

BLACK SHEETS		
10 gauge	4 40	4 65
12 gauge	4 50	4 75
14 gauge	4 60	4 85
16 gauge	4 70	4 95
18-20 gauge	4 95	5 20
22-24 gauge	5 10	5 35
26 gauge	5 15	5 40
28 gauge	5 25	5 50
Sheets 3 in. wide, 20 cents per 100 lbs. extra.		

GALVANIZED SHEETS.		
U. S. Standard.		
10½ ounce	7 25	7 75
28 gauge	6 85	7 35
26 gauge	6 45	7 00
22-24 gauge	6 25	6 75
20 gauge	6 10	6 60
18 gauge	6 00	6 50
16 gauge	6 00	6 50
14 gauge	16 00	6 50
12 gauge	6 00	6 50
10 gauge	6 00	6 50

English Standard—		
28 gauge	8 50	7 75
26 gauge	8 25	7 50
24 gauge	7 65	7 10
22 gauge	7 30	6 65
18-20 gauge	6 60	6 50

NOTE.—These prices are full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz. 25 cents per 100 lbs.

CANADA PLATES		
Dull—		
18 x 24 x 52s	5 80	box
18x24 x 60s	6 00	box
18x24 x 75s	6 30	box

WELSH CANADA PLATES		
Polished—		
18 x 24 x 52s	8 25	box
18x24 x 60s	8 50	box

BRIGHT TIN PLATES		
		Box
20x28 X 100 lb. basis	17 50	
20x28 IC 112s	18 00	
20x28 IX 112s	20 00	
20x28 IXX 56s	11 25	
20x28 IXXX 56s	12 00	
TERNE PLATES		
20x28 IC 112s.	17 30	

IRON AND STEEL NOW QUOTED WITH A RANGE

Montreal.

Iron and steel prices are generally reduced in some quarters, while other jobbing houses are maintaining the former higher quotations. The reduction is, however, slight in all cases and principally due to dealers being anxious to further reduce stocks in preparation for any further developments at the mills, although in this connection there is said to be little expected until productive costs are lowered.

Higher grades of steel, such as mining tooth and Black Diamond tool steel, are reduced one cent per pound and are now quoted at 22 cents. Business is only fair, with orders being of a small character. However, with little construction work now under way, much improvement can hardly be expected. Following are prices with the range given:

Common bar iron, 100 lbs.	3 00	3 25
Refined iron	4 00	4 30
Irish finish machinery steel	3 45	
Mild steel	3 00	3 40
Single reeled machinery steel	5 00	5 25
Band steel	3 60	3 40
Spring steel	6 00	
Sleighshoe steel	3 00	3 40
Tire steel	3 00	3 60
Toe calk steel	4 00	4 30
Harrow tooth steel, per lb.	3 55	
Mining both steel per lb.	0 23	
Black Diamond tool and cast steel, per lb.	0 22	

NOTE.—Refined iron is approximately \$1.50 per 100 pounds over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.
Flats, iron and steel, 3-16 and thinner, 50c per 100 lbs. extra.

NEW LOWER LIST ON CORRUGATED SHEETS

Montreal.

The new lower prices, stated in recent issues of SANITARY ENGINEER as quite probable, are now announced on corrugated sheets. The reduction is between 10 and 12½ per cent on the different gauges. Plain galvanized sheets have for some time past been selling on an easy market with reductions from time to time quoted, and corrugated sheets have not recorded the same amount of price decline, thus lower prices are announced in keeping with present levels of the plain sheets. It is doubtful whether the new prices will act as a stimulus to trade, but it is believed they will have a settling effect on the market as these sheets have been very unsettled in the past weeks. Following are the revised list prices and discount;

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50

Less 1½%.
Lighter than 24 gauge and wider than 27 inches,
75c a square extra.

BOILER TUBES SHOW NO CHANGE

Montreal.

With prices on the various sizes of both seamless and lapweld boiler tubes holding unchanged, there seems to be an improvement in the market through inquiries continuing to come to hand. While these have not yet developed to any extent into actual sales, they enable dealers to believe that a fair amount of business will be done during the following fall months, at least an improvement over the quiet summer months. Unchanged prices are as follows;

BOILER TUBES—	Seamless	Lapweld
1 inch	25 00	.....
1¼ inch	26 00	.....
1½ inch	25 00	.....
1¾ inch	28 25	27 00
2 inch	27 80	23 00
2¼ inch	31 35	26 00
2½ inch	39 65	28 00
3 inch	46 80	33 00
3½ inch	0 35	41 00
4 inch	81 00	51 75

COPPER AND BRASS REMAIN AT DECLINE

Montreal.

There is no further announcement of a change in prices of copper or brass sheets, rods or tubing, since the decline in prices two weeks ago. Metals in the primary markets fail to show any improvement, and if this continues, further recessions in these finished products would not be surprising. Following are present prices;

Copper—	Base
Rods, per lb.	0 30
Sheets, plain, 16 oz. and heavier	0 30
Sheets, plain tinned, 16 oz. and heavier	0 37
Sheets, polished and tinned, 1 oz. and heavier	0 42
Tubing, per lb.	0 34
Brass—	
Sheets, per lb.	0 25
Rods, per lb.	0 23
Tubing, per lb.	0 32

VICTOR HACK SAW BLADES HAVE LOWER PRICES

Montreal.

A reduction has been made in the prices of Victor hack saw blades, amounting to between 10 and 12½ per cent. on all lengths.

NO FURTHER CHANGE IN RANGE BOILERS

Montreal.

No change is recorded either in price or market conditions on range boilers. Quotations are held at prices announced some weeks ago by manufacturers with the exception of the 30 gallon boiler which has been reduced generally to \$7.50. Although a revision in present prices was expected some time ago there is little indication of any change at present. Following are present selling prices;

RANGE BOILERS—	Standard	Ex. heavy
30 gallon	7 50	11 25
35 gallon	11 25	.....
40 gallon	13 50	16 00
52 gallon	20 00	.....
66 gallon	28 00	.....
82 gallon	35 00	.....
100 gallon	45 00	.....
120 gallon	54 00	.....

CHANGED DISCOUNT ON ENAMELED WARE

Montreal.

A further change is recorded in the price of enamelled ware when the discount is now 30 per cent off list prices. With this quotation it is believed the market has taken the turn toward a more stable condition, and although this brings the net prices on all lines to a slightly lower level than formerly when 20 and 10 per cent was given, it is thought that quotations will generally settle at this figure. It is apparent that the recent price shading, when resale prices were down to replacement costs, did not act as a stimulant to trade. On the other hand, some dealers are of the firm conviction the effect of the extreme low prices had the opposite effect, and the price settlement now announced at higher quotations will be welcome among the trade. There is a steady movement of the various lines, but sales continue of a small character. Following are list prices and discount;

Sinks, flat rim—	1 only	2 only	3 only
16 x 40	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5½ feet	57 10
Lavatories—	
17x19 in. Apron F130 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
Less 30 per cent.	

NO CHANGE IN CLOSET PRICES

Montreal.

Net quotations on the different closet outfits remain unchanged, notwithstanding a change in the prices of other enamelled ware. In the case of closets, however, prices did not drop to the same extent as other lines, although present prices are considered very low in comparison with replacement costs. Business is fair, new construction work de-

manding supplies at this time, but there is still room for improvement in this regard. Following are present net prices;

Closet, standard outfit	26 00
Do., with post hinge seat	26 75
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	29 75
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	16 50
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50

INGOT METALS DO NOT HOLD GAINS

Montreal.

With the exception of spelter, the ingot metals have again settled in a more or less easy state with a slack demand in most cases. Spelter has regained the decline earlier in the week and promises a fairly steady market. While the recent interest shown was only temporary, it may be that the present slackness is not for long standing, and an improvement would not be surprising in some metals.

TIN—Last week's easier tone continued practically all this week. Tin plate manufacturers have eased off in their buying, which caused the flurry of two weeks ago, and at present the market is dull at 34 cents.

COPPER—The copper market is in a rather uncertain state, both buyers and sellers evidently fearing a change and holding off. There is really nothing new to report in the market and prices locally are unchanged at 17½ cents for electro, and 17 cents for casting.

LEAD—The business offering in lead seems to have fallen off to an extent recently, but certain markets are expected to open in the near future that will bring about a decided improvement. Local quotation is unchanged at 6½ cents.

SPELTER—Spelter had a further slight decline early in the week but prices have since stiffened, and this metal looks much better. There is a demand from the galvanized sheet and tube trade and if this continues, higher prices may be looked for. Quotation locally is holding at 7½ cents.

ANTIMONY—The situation on antimony is very little changed. The demand is quiet with price holding unchanged at 7½ cents for Chinese, 8½ cents for high grade English.

ALUMINUM—Quotation of 30 cents still holds on aluminum, with the market continuing dull and unchanged.

TORONTO MARKETS

TORONTO, September 27.—Numerous price reductions on various lines vital to the interest of the plumbing and steam-fitting industry, continue to feature the current market reports. There has been a substantial lowering in quotations on corrugated sheets in all gauges, and a new list of prices on range boilers has been announced in the hope of stabilizing this market. There are also lower prices on Canada, charcoal tin, and terne plates; while easier quotations on copper and brass goods have now developed. The wire nail base is again reduced, and stove bolts, iron rivets and burrs, standard compression work, compression bath cocks, standard flat way stop and waste cocks, quick opening basin cocks, wrought couplings and nipples, galvanized shingles and steel ceilings, are all products showing recent price reductions. A new pipe list No. 53, is now effective on wrought piping, bringing prices to a lower level. Revised quotations are also given on closet combinations, bowls and tanks. There remains a firm undertone to the cotton waste markets, but no price adjustments have been announced. The moderate broadening in steel consumption is mainly looked upon as seasonable, and prices on bar iron and steel, also sheets and plates, remain practically steady. Scrap brass prices have sagged another 25 cents, and the scrap material markets continue in their sluggish condition. The general depression is still evident in ingot metals.

RADIATOR BUSINESS SHOWS CUSTOMARY FALL IMPROVEMENT

Toronto.—The recent improvement in radiator business, while registering a gratifying increase over the dull summer months is stated as not standing any comparison with the volume of trade in these lines last year. A brisker movement in both radiators and boilers, is however, customary during the Fall period, and dealers consider that the ensuing weeks should see no exception to this rule, according to present indications. Both prices and discounts remain unchanged.

WIRE NAIL BASE NOW DOWN TO \$4.00 PER KEG

Toronto.—A further reduction has now been made in the base price of wire nails, the current decline of another 15 cents bringing the local quotation to \$4.00 per keg. This is the second recession in prices on wire nails recorded during the past two weeks, the general situation indicating some unsettlement in market centres.

HACK SAW BLADES LOWER

Toronto.—A 10 per cent. reduction in prices on the Victor line or hack saw blades have been announced by the manufacturers.

GALVANIZED SHINGLES NOW \$9.00 PER SQUARE

Toronto.—Galvanized shingles have been reduced in price and are now selling at \$9.00 per square, according to a recent announcement by the manufacturers. This quotation is subject to the usual discount of 7½ per cent.

REVISED LOWER PRICES GIVEN ON STEEL CEILINGS

Toronto.—Price reductions are also announced by the makers on steel ceilings. These are now listed at \$6.00 per square for standard plates, and \$7.00 per square for miscellaneous plates. The customary discount of 10 per cent. is still maintained.

MODERATE EXPANSION IN STEEL CONSUMPTION

Toronto.—Current reports on bar iron and steel indicate a little better activity, but this improvement is stated as only to be expected at this season of the year. There are dealers who look upon the present volume of inquiries and the resultant slightly higher percentage of orders, as the usual flurry before trade opportunities in this industry are again practically closed by winter's annual dullness.

Signs of a moderate broadening in iron and steel consumption is also reported from southern primary markets. Producers have experienced an improvement in demand, and mills have consequently increased their output. Prices are practically unchanged, however, and this condition is reflected locally, the following table containing a clear indication of the average market quotations on bar iron and steel:

IRON AND STEEL			
Mild steel bars, base	3 25	3 50	
Mild steel bands, 3-16 in. base	3 75	4 00	
Bar iron, base	3 35	3 50	
Angle iron, base	3 25	3 00	
Horseshoe iron	4 10		
Tire steel	4 75	5 90	
Spring steel	9 50	11 50	
Crucible cast sheet steel	30 00	35 00	
Mining drill steel	20 00	23 00	
Cast tool steel, medium		18 50	
Cast tool steel, high grade	30 00	36 00	
Sleigh shoe steel	4 10	4 50	
Norway iron		15 00	
Toe caulk iron	5 40	6 40	
Hoop steel	4 50	4 75	

SUBSTANTIAL DECLINE IN QUOTATIONS ON COR- RUGATED SHEETS

Toronto.

Another drastic downward revision is shown in quotations on galvanized corrugated sheets. The fall market for these products is stated to be somewhat below the average expectations, and when compared with the prevailing prices on flat sheets, the previous list registered a fairly large spread. This has now been changed, and the new level effects all gauges. The current discount remains as heretofore. Following are the new list prices on corrugated sheets:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

LEAD MARKETS REGISTER GAIN IN STRENGTH

Toronto.

While local quotations on lead and zinc goods remain unaltered, at present, it is noticeable that lead is now one of the strongest metals on the primary market centres. The trend of metals chiefly used in the production of solder is also being carefully watched, and upon future gain or loss in this direction rests the possibility of readjustments in solder prices. The prevailing quotations follow:

LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends, 10 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ¼c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 29
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiring, lb.	0 20
Zinc sheets, per lb.	0 13

BUSINESS IS GOOD IN ENAMELLED WARE

Toronto.

Business in enamelled ware was quoted as "good" by one local jobber when questioned in this regard by Sanitary Engineer, while another prominent dealer stated that they "had just about as much as they could handle comfortably." While this degree of improvement was not entirely unexpected, it still shows a more satisfactory condition than was the case earlier in the summer. As a result, quotations and discounts have remained unchanged, and although some revisions have been announced on closet outfit prices this readjustment has not yet extended to enamelled ware. Following are the prevailing prices:

ENAMELLED WARE—

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16 25
Do., do., 5½ ft., net.	17 50

Lavatories—			
17x10" Apron F139 or P4045	15	30	
18x24" Apron F154 or P3845 or P3847..	23	60	
Sinks, Roll Rim, 16x24 in.	18	10	
Do., 18 x 30 in.	23	00	
Do., 20 x 30 in.	24	70	
18x21" Apron F169 or P4205	17	60	
18 x 21" Roll Rim, F197, F199 or P4655-6	15	40	
17 x 19" Roll Rim, F241 or P4345	12	60	
Sinks, Flat Rim—			
16 x 24	1 only	2 only	3 only
18 x 30	\$7 60	\$7 70	\$7 80
20 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90
All above list except lines marked net.			
Discount 20/10% off these prices.			

SIZE OF ORDER GOVERNS BOILER TUBE PRICES

Toronto.

A slight seasonable increase in business is reported by dealers in boiler tubes, this applying particularly to the smaller sizes. The uncertainty as to local market prices still continues, however, the quotation being made to fit the prospective order, wherever possible. Price shading in order to secure business, has been one of the features of the markets in steel products for the past few months. The following is a conservative list of prices quoted by various distributors of boiler tubes:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1¼ inch	27 25	.....
1½ inch	26 25	.....
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

SCRAP BRASS PRICES SAG ANOTHER 25 CENTS

Toronto.

While the waste markets generally continue in their sluggish condition, hopes for some little improvement are now entertained. A few inquiries are reported to have filtered through, and as a consequence, a little more business has been consummated. In spite of this however, there is no real demand, the current purchases consisting of small lots for immediate needs only. The only change in price this week is another drop of 25 cents in yellow brass.

The following is the average of dealers buying prices for fairly large quantities.

WASTE MATERIALS—		
No. 2 busheling	11	00
Heavy melting steel, gross ton	9 50	10 00
R. Rd. wrought iron, No. 1, gr. ton	10 25	11 25
Scrap pipe, gr., ton	00	7 00
Stove plate, net ton	11 00	12 00
No. 1 machinery cast, net ton	15 00	16 00
Heavy lead	3 75	4 00
Tea lead	2 00	2 50
Red brass	9 00	
Yellow brass	5 00	6 00
Light brass	3 00	3 50
Heavy copper	9 25	10 00
Scrap zinc	3 00	3 50
Old rubbers, boots and shoes	2 00	2 50
Lumberman's rubber boots ..	1 25	1 75
Auto tires	0 50	1 00
Solid tires	0 75	1 25

NEW LIST PRICES ON RANGE BOILERS

Toronto.

The unsettlement that has recently prevailed in the markets on range boilers, has now been minimized to some extent through the announcement of an established uniform price on these products. The revised quotations are

slightly higher on the 30 and 35 gallon sizes, which are the two most popular ranges this season; while some downward revision from the previous list prices is shown on sizes 40 gallon and larger. Following are the new quotations:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$ 8 75	\$11 25
35 gallon	11 25	13 50
40 gallon	13 50	16 00
52 gallon	20 00	24 50
66 gallon	28 00	34 00
82 gallon	35 00	46 50
100 gallon	45 00	55 00
120 gallon	54 00	63 25
144 gallon .....	.....	78 00

SOME AMERICAN MILLS RAISE PRICES ON SHEETS

Toronto.

The recent announcement by some of the smaller producing mills in the United States of higher quotations on black and galvanized sheets, has naturally attracted a certain amount of interest in local trade circles. Whether this move would indicate that prices on sheets and plates have almost reached bottom, and that this increase is the commencement of the turn in the tide, is yet too early to determine. It is noticeable in this connection that a waiting policy has been generally adopted by other producers.

Local quotations are generally unchanged and the announcement that lower freight rates are withheld pending the final settlement of wage arbitration proceedings, has now produced the feeling that lower prices on sheets and plates cannot be expected from the source of reduced transportation charges for some few months.

BLUE ANNEALED—		
10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—		
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 10
26 gauge	4 65	5 15
28 gauge	4 75	5 25
Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.		

GALVANIZED—		
	Queen's Head.	Fleur-de-lis.
28 gauge	9 50	8 75
26 gauge	9 25	8 50
24 gauge	8 65	8 10
22 gauge	8 30	7 65
18 and 20 gauge	7 60	7 50
Premier and Apollo—		
10¾ oz.	6 50	7 50
11. S. 28, base	6 10	7 10
11. S. 26	5 80	6 80
22 and 24	5 65	6 65
18 and 20	5 50	6 50
16	5 35	6 35
12 and 14	5 20	6 20

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

PRICES LOWERED ON CANADA AND TIN PLATES

Toronto.

Extensive reductions in prices on Canada plates now appear on the local market. A revision to a lower price level is also given on charcoal tin plates. Dealers report that there is a fair demand for these products, with a normal degree of activity in furnace and

stove repair work. Following are the revised quotations.

PLATES, CANADA—		Per box
Dull, 60 sheets .....	.....	5 95
Ordinary, 52 sheets .....	.....	5 90
PLATES, COKE TIN—		
1X, 20 x 28, 11 2sheets .....	.....	20 50
1X, 20 x 28, 56 sheets .....	.....	12 00
PLATES, CHARCOAL TIN —		
1X, 20 x 28, 5 6sheets .....	.....	14 00
1XX, 20 x 28, 56 sheets .....	.....	16 00
PLATES, TERNE—		
1C, 14 x 20, 112 sheets .....	.....	12 00

LOWER QUOTATIONS ON COPPER AND BRASS GOODS

Toronto.

As outlined in the market reports contained in a recent issue of Sanitary Engineer, the reductions on copper and brass goods have now developed. Sheets, rods and tubing, are affected by these current price changes, the extent of which shows an average decline of two cents per pound. Following are the revised price levels:

BRASS—	
Sheets base, per lb.	\$ 0 26
Rods, base, per lb.	0 28
Tubing, base, per lb.	0 32
COPPER—	
Rods, base per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned 16 oz. and heavier, lb.	0 38
Do., polished and tinned 16 oz. and heavier, lb.	0 43
Tubing	0 31

IRON RIVETS AND BURRS NOW REVISED LOWER

Toronto.

Through a revision in discounts, a 9 per cent decrease in prices on iron rivets and burrs is now effective. This change was made effective from September 10, and the new quotation is 50 per cent off list on 200-lb. kegs. The previous discount was 45 per cent on both the rivets and burrs.

REVISED DISCOUNTS ON STOVE BOLTS

Toronto.

A reduction of approximately 7 per cent has been announced in prices on stove bolts. This is the second lowering in quotations which has taken place in as many months, and as before, this revision is obtained through changes in discounts. The quotation is now 67½ per cent, whereas the former discount was 65 per cent.

QUOTATIONS ON HAMMERS

LOWERED FROM 5 TO 10%

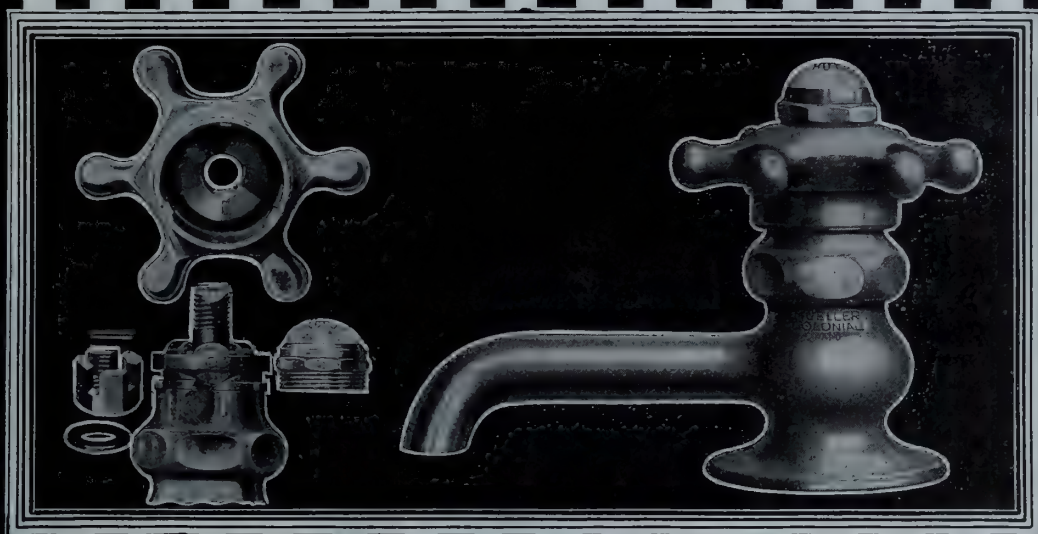
Toronto.

Reductions in the prices on various makes of hammers are announced by the manufacturers Canada Foundries and Forgings Limited. The decline is effective September 20, and covers a 10 per cent. reduction on Diamond G hammers, and a 5 per cent. lowering in prices on the Thousand Island line of hammers. Quotations are also reduced to the extent of 10 per cent. on sledge and striking hammers.

FIRM UNDERTONE IN COTTON WASTES

Toronto.

While cotton waste markets have recently registered a gain in strength owing to the sudden rise in raw cotton prices, fluctuations on the cotton markets have kept the price situation on



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cotton wastes a little uncertain. Local dealers, in some cases, are looking for an advance in waste prices, but the increase is not yet applied owing to the stocks on hand. It is noticeable that large manufacturers are not purchasing heavily at the present level of raw cotton, and that stocks of cotton goods have only reflected this inflation in cost of raw materials to a moderate extent. On the basis of higher prices for raw cotton, some revision in quotations on wastes are not considered unlikely, but local prices are at present unchanged, pending the activity of primary markets.

REPORT METALS REACH BOTTOM OF TRADE DEPRESSION

Toronto.

There is still general depression evident in the metal markets. While slight variations in the different metal quotations have taken place from time to time, there still remains almost limitless room for improvement in the direction of stability and strengthened tone to these markets. The general lack of demand and the consequently existing conditions in the trade, has forced many producers to discontinue operations, but in spite of this fact, present stocks are said to be well able to care for prevailing consumption which has shown little or no signs of increasing.

On the other hand, reports of anticipations in respect to betterment in the near future have recently emanated from the U. S. markets, and a slightly firmer undertone in some metals is indicated. Local ingot prices, however, generally remain unchanged at the following levels:

Copper,—17 cents.

Tin,—35 cents.

Lead,—\$6.75.

Spelter,—\$7.00.

Antimony,—8 to 10 cents.

Aluminium,—28 to 29 cents.

PRICE REDUCTIONS STIMULATE TRADE IN BUILDING PAPERS AND ROOFINGS

Toronto.

Manufacturers and distributors of roofings, building papers and similar products state that the current demand for these lines is good. Some dealers are of the opinion that the present movement is better than was expected, and the proportion of fall building has reflected a marked improvement in activity over the previous summer months. The various reductions in prices on these commodities that have been recently announced, has also had a contributory effect towards increased business during the current season.

IMPROVED BUSINESS IN STOVES AND RANGES

Toronto.

Both manufacturers and wholesalers now report a more active movement in stoves and furnaces. As a general rule this is business which appears during the months of July and August, but these two months this season were path-

etically dull from a new business viewpoint. However, dealers now report that the orders are arriving in nice volume, and the various shipping departments are throbbing with renewed activity.

Electric ranges are evidently gaining in popularity this year, if the proportion of sales is any indication, as jobbers state that this style of range is moving well. Furnace work is also showing much improvement, with the spread of more direct knowledge as to installation and effects, both from a theoretical and practical standpoint. Stove and furnace repair work is generally only of a medium character this fall, as much endeavour in this line was undertaken during the past two seasons when repairs were made to ranges, and so on, from the sense of economy. Dealers now feel that a fair proportion of sales are maturing, and evidently hope for an averagely prosperous fall season in stoves ranges and furnaces.

MOVEMENT OF CONDUCTOR PIPE AND EAVESTROUGH SHOWS SOME IMPROVEMENT

Toronto.

The current movement of eavestrough, conductor pipe and conductor elbows is reported to be well up to last year's volume and is generally now more satisfactory. The nature and proportion of fall building activity has been reflected in this improved demand for eavestrough and pipe, while the recent price lowering on these products, is considered to have had a stimulating and encouraging effect towards home improvement and erection. Following are the unchanged discount quotations:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 60-10 per cent.	

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00
Less 60-10 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

CEMENT SALES IMPROVE

Toronto.

The recent improvement in the volume of home building and other seasonable construction work, has been reflected in the demand for concrete. While sales are reported to have recently attained a more active stage, stocks in the hands of cement manufacturers are described as ample. Production of this building commodity has been well up to the average this season, but the lower prices recently announced, have had some effect in stimulating current building activity. Following are the prevailing local quotations on cement:

CEMENT—

Car load lots.	Toronto.
Per barrel	4 00
Less car lots	
Per barrel, f.o.b. yard	4 75
Per barrel, delivered	5 00
Single bags, \$1.25 each; 4 bags to barrel.	
Extr. charge of \$1.50 per load on less than 24 bag lots.	
Rebate of 20 cents for empty sacks.	

REVISED DISCOUNTS ON STANDARD COMPRESSION WORK

Toronto.

Further revisions to lower levels are now given in the discounts on certain lines of compression work. A reduction of approximately 10 per cent is announced on standard compression work, while the discounts are also changed on compression bath cocks, standard flat way stop and waste cocks, and quick opening basin cocks No. 3633.

The present market for these products is stated by various dealers to be fair, but it is not generally considered good, for although a medium volume of trade is recorded, the movement is spasmodic.

Following are the new discounts:—

	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoaks, stand'd	46
Roundway stop and waste cocks, std.	40
Brass steam cocks, standard	10
Globe angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves ..	20
J. M. T. valves	20
J. M. T. C.	25
J. M. T. gate valves	25
Gate or straightway	16-10
Jenkins globe	10-10
Radiators valves, standard	58
Do., removable disc	58
Emco, J. D. valves	20
Emco, check valves	20
Webber gate valves	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
Quick opening No. 3633	43

REVISED QUOTATIONS GIVEN ON CLOSET COMBINATIONS, TANKS AND BOWLS

Toronto.

An increase in the prices on closet combinations, and some reductions in quotations on closet tanks and bowls, constitutes one of the feature price revisions on the current markets. The lower price levels recently existing on the standard combination closet outfits is stated as having been too low when compared with production costs, and any slight unsettlement which may have developed between jobbing houses because of this factor, is expected to be eliminated through the prevailing readjustment.

The movement in these products is described as fair, and following are the revised quotations:

CLOSET COMBINATIONS, low down.	Each.
Closet, standard outfit oak	28 00
Do., with post hinge seat	28 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover...	31 00
Do., vitreous china, with oak post hinge seat and cover	31 55
Do., vitreous china, with mahogany post hinge seat and cover	31 75
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	31 55
Do., white Vitro or Pussyfoot, with mahogany post hinge seat & cover	31 75
Do., enamelled iron tank with oak post hinge seat and cover	31 55
Do., enamelled iron tank with mahogany post hinge seat and cover	31 75



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Additions or reductions to above.	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For 3-8 in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80

CLOSET BOWLS—	
Wash-down bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richlieu" bowl	10 50

CLOSET TANKS, low down—	
Oak, oak Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	20 25

CLOSET SEATS—	
Oak wood strip seat and cover	3 70
Oak post hinge seat and cover	4 75
Mahogany finish post hinge seat & cover	5 00

WROUGHT COUPLINGS AND NIPPLES AGAIN REDUCED

In conjunction with the recent change in prices on piping, the quotations on wrought iron nipples and couplings are also revised. The change is in the nature of a reduction, and varies approximately between 7½ and 10 per cent. on the different sizes, five points being added to the discount figures. The recent readjustments on bushings, plugs, and unions, are still maintained, and following are the current quotations on pipe fittings generally:

PIPE FITTINGS—		Per cent.
Cast iron fittings		20
Plugs, cast iron		25
Do., solid		25
Do., countersink		25
Bushings		25
Unions, ¼ in. to 2 in.		40
Do., 8 in., 2¼ to 4 in.		40
Flanged unions		20
Dart unions, blk., ¼ to 2 in.		29
Do., ½ in., 2¼ to 4 in.		14
Do., galvd., add to black		30
Nipples, blk., and galvd. ¼ to 4 in.		
close and short		50
Do., 4½ in. and larger		40
Do., long, ¼ in. to 4 in.		60
Do., 4½ in. and larger		50
Do., running thread		30
Couplings, 4 in. and under		30
Do., 4½ in. and larger		10

MALLEABLE FITTINGS—		Black	Galvanized
Class A		0 58	0 72
Class B		0 22	0 32
Class C		0 14¼	0 22

WINNIPEG MARKETS

WINNIPEG, September 26.—Price changes in plumbing and steam fitting supplies are not as numerous of late, but some revisions have been recorded on various lines of compression work, such as bath cocks, compression bibbs, and stop and waste cocks. A firm tone has developed in cotton waste markets, while some revisions in wrought piping are looked for in some quarters.

The total volume of trade has recorded very little improvement, however, and no marked increase in business is now anticipated prior to next spring.

PIPE MOVEMENT IRREGULAR

Some revising in quotations on wrought piping are looked for in certain quarters.

The movement of piping has been very irregular during the past few months, but has been satisfactory from the jobber's standpoint. Outside dealers' stocks have been kept low during the summer, and the buying has been purely of a sorting character. A fairly steady movement is anticipated, however, in the coming fall period.

NEW PIPE LIST SHOWS 7½ TO 10 PER CENT. PRICE REDUCTION

Toronto.

A new pipe list has now been issued thus superseding No. 52, of July 11. The revised table, No. 53, dates from Sept. 22, and shows a reduction of from 7½ to 10 per cent. in the prices on wrought iron piping. Recent easier market tones in steel products generally, have extended to tubular goods, and the current revision supplies a change in the downward direction, which is said to be based upon some slight reductions in cost levels, coupled with the irregular demands for piping which has been more or less noticeable all through the season. The general movement is more pronounced in the smaller sizes, a factor which is featured indirectly in these prevailing revisions, as a higher percentage of price reduction is given on the larger sizes. Following is the new pipe list:

WROUGHT PIPE—LIST No. 53 Standard Butt Weld Pipe S/C Per 100 feet.					
Size		Steel		Gen. Wrot. Iron	
		Blk.	Galv.	Blk.	Galv.
1¼ in.		\$ 6 00	\$ 8 00		
1½ in.		4 20	6 30	7 20	9 30
2 in.		4 20	6 30	7 20	9 30
2½ in.		5 36	6 97	7 48	9 10
3 in.		6 44	8 28	9 09	10 93
3½ in.		9 18	11 90	12 92	15 64
4 in.		12 42	1 10	17 48	21 16
4½ in.		14 85	19 25	20 90	25 30
5 in.		19 98	25 90	28 12	34 04
5½ in.		31 59	40 95		
6 in.		41 31	53 55		
6½ in.		53 36	68 08		
7 in.		63 22	80 60		

Standard Lap Weld Pipe S/C Per 100 feet.					
Size		Steel		Gen. Wrot. Iron	
		Blk.	Galv.	Blk.	Galv.
2 in.		\$23 68	\$29 60	\$31 82	\$37 74
3 in.		35 10	44 46	47 97	57 38
4 in.		45 90	58 14	62 73	74 97
5 in.		54 28	70 84	74 52	91 08
6 in.		64 31	83 93	88 29	107 91
7 in.		72 39	92 71	1 04	1 24
8 in.		84 36	108 04	1 21	1 45
9 in.		1 09	1 40	1 57	1 88
10 in.		1 45	1 88	2 02	2 45
11 in.		1 53	1 98	2 13	2 58
12 in.		1 76	2 28	2 45	2 97
14 in.		2 14	2 76	2 97	3 59
16 in.		1 98	2 5	2 75	5 33
18 in.		2 55	3 30	3 54	4 28

REVISED DISCOUNTS ON COMPRESSION WORK

Winnipeg.

Quotations have been reduced on various lines of compression work. Following are some of the revised discounts and net prices now prevailing on local markets:—

COMPRESSION WORK—

Basin cocks	.....off list	23 per cent.
Pantry cocks	.....off list	28 per cent.
Bath cocks, No. 2360, without tail pieces,		
each	.....	5 10
with tail pieces	.....	6 30
Quick pressure	.....off list	38 per cent.
Compression bibbs	.....off list	35 per cent.
Compression stops	.....off list	35 per cent.
Stop and waste cocks	.....off list	35 per cent.
Sill cocks	.....off list	45 per cent.

RANGE BOILER PRICES HOLD

Winnipeg.

Prices remain firm on Range Boilers and the opinion is that they will likely hold for some time at present prices.

Following are the latest quotations:

RANGE BOILERS—

Size.	Price, each.
30 gal.	\$10 00
35 gal.	13 25
40 gal.	16 25
45 gal.	23 45
52 gal.	33 15
66 gal., No. 2360	40 60
82 gal.	62 50
100 gal.	75 00
120 gal.	

COTTON WASTE MARKETS FIRMER

Winnipeg.

The recent improvement in raw cotton markets, and the advanced quotations on manufactured cotton goods, has been reflected in the tendency to firm up prices on cotton wastes.

The prices on both white and colored cotton wastes which recently came into effect are being well maintained, with no further price revisions, as yet, —having been made.

Following are prevailing quotations:

WASTE—

Cream polishing, per lb.	0 24½
White—	
XXX extra, per lb.	0 21
XX grand	0 20
XLGR	0 19
X empire	0 17½
X press	0 16
Colored—	
Fancy	0 17½
Lion	0 16
Standard	0 14½
Popular J.	0 18
Keen	0 11½

Above prices are subject to trade discount.

QUOTATIONS HOLD ON PIPE FITTINGS

Winnipeg.

Although business in pipe fittings is a trifle better it is not up to trade expectations. Prices are still firm and no changes have been announced.

Following are the current quotations:

PIPE FITTINGS—

Cast iron	.....off list	15 per cent.
Reducers	.....off list	20 per cent.
Bushings	.....off list	20 per cent.
Plugs	.....off list	20 per cent.
Unions, std.	.....off list	35-5 per cent.
Dart, ¼ to 2 in.	.....off list	29 per cent.
Do., ½, 2* to 4 in.	.....off list	15 per cent.

Malleable fittings.

Class Aoff list	55 per cent.
Class B & Coff list	65 per cent.

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Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

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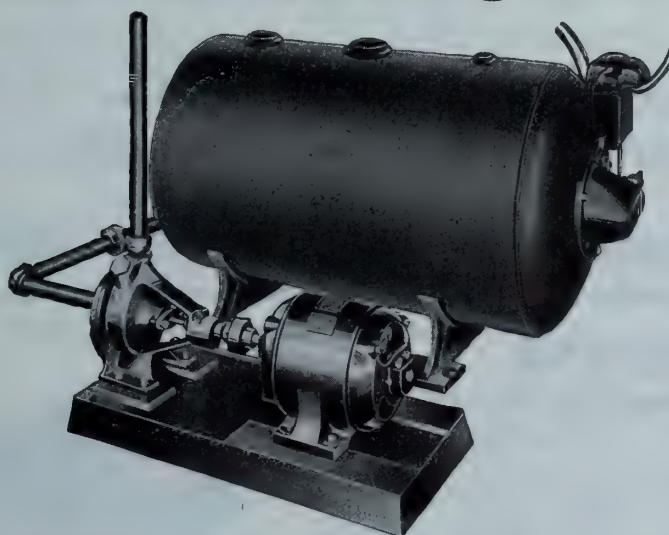
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They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

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Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers

- Walkerville, Canada

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plicated contrivances to get out of order and make trouble. They work easily, smoothly, rapidly and accurately. A. B. Jardine and Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.



"Toledo" Geared Adjustable Threading Tool.

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Weight 120 lbs.

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It will pay you to follow Sanitary Engineer from now on more closely than ever. Every successful business man must keep his fingers on the pulse of his business.

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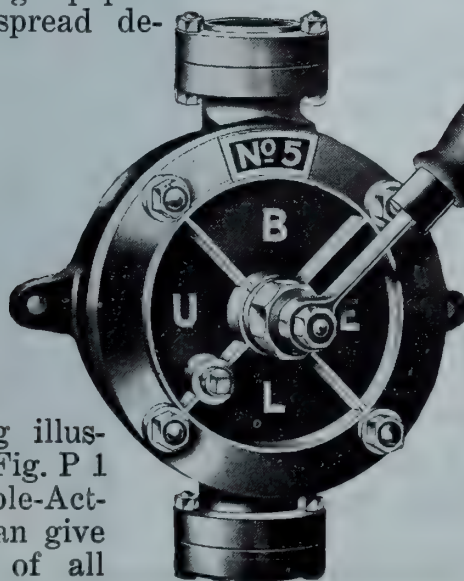
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True Economy Stack Heater

The Stack Gas Water Heater will heat water in one minute.

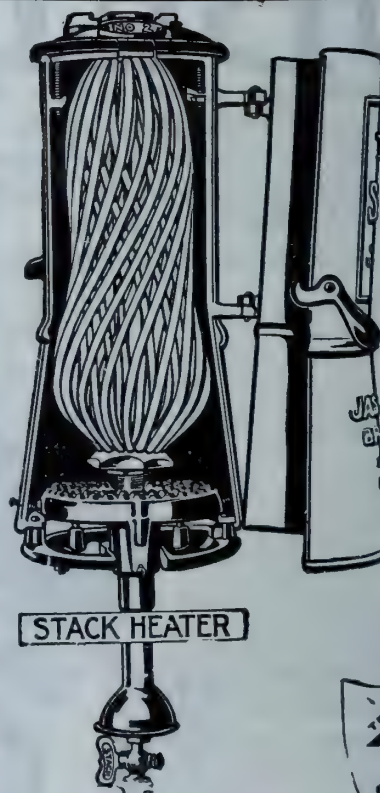
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Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

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The James Morrison Brass Mfg. Co. Limited
93-97 Adelaide Street West, Toronto, Ontario



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SAVE ON

**Coal, Cost of Installation, Shipping and
Handling, Weight and Fittings**

They are superior in design and arrangement; artistic in appearance. Steel tubing is thinner and more effective in radiation so that advantages in air circulation are gained. There are two flat, hollow castings, forming



a top and bottom part, with tubes inserted—double tubes, one within the other. The water circulates between the two tubes and through the headers. They require less water to be heated, permitting a smaller furnace, and consequent fuel saving.

Write to-day, asking for literature which will make clear the large number of advantages in Victory Radiators.

Montreal General Tool Company, Limited
2419 NOTRE DAME ST., EAST, MONTREAL



VULCAN Pure Air Furnace

We want you to know about this furnace; it will be good for your business. You can install Vulcan Pure Air Furnaces very profitably. We want you to know the details and what's in it for you. Write us today. Just put on a post card, "Vulcan Pure Air Furnace" with your name and address, address it and mail it to us. These reliable furnaces are economical, easy to operate, have a greater radiating surface, and the heavy metal makes them very durable. Read what impartial users have to say for them:

London, Feb. 11th, 1921.

Gentlemen:—

I have used the Vulcan Pure Air Furnace for several years. I find it economical on fuel, easy to operate, and as it has a greater radiating surface than any other in its class, I have been well pleased with the results. I can recommend its use to any. I believe it to be durable on account of the heavy metal in its construction.

DR. COPELAND.

London, Feb. 11th, 1921.

Gentlemen:—

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MR. C. H. SUMMER.

R. R. No. 8.

London, Feb. 10th, 1921.

Gentlemen:—

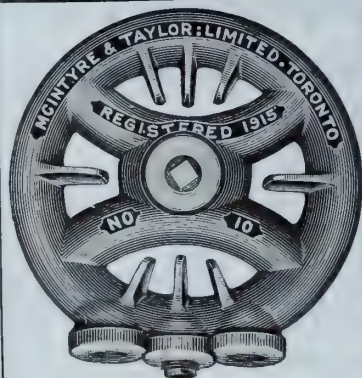
I have been using the Vulcan Pure Air Furnace for the past five years. Have had thorough satisfaction in heating a twelve-room house in which I live. Have found this furnace very economical on fuel according to the amount of fuel consumed by other furnaces not doing the amount of work that this Vulcan does. I recommend this Vulcan Furnace to its full extent for economy, satisfaction and durability.

W. H. ROBINSON.

The Vulcan Co., Limited
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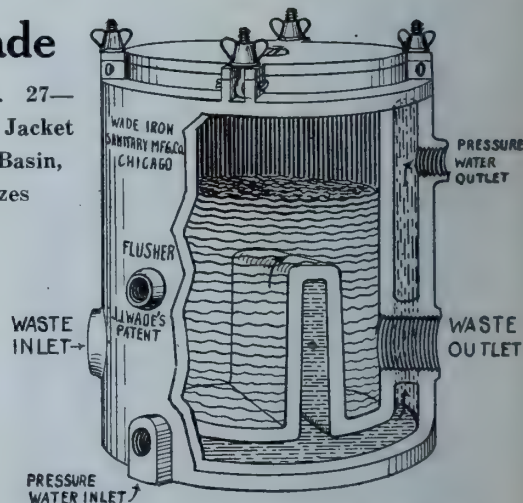
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B. Fig. 27—
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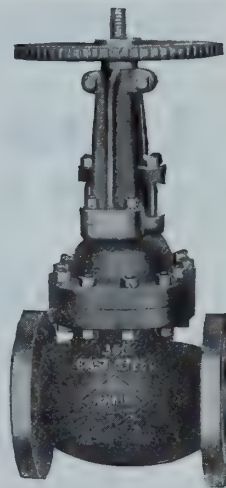
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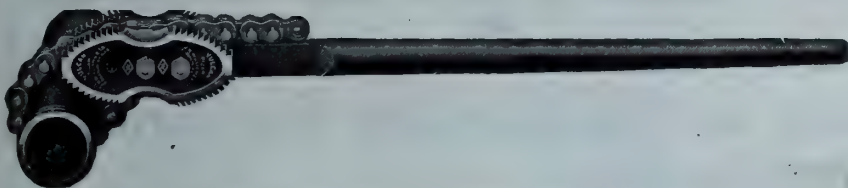
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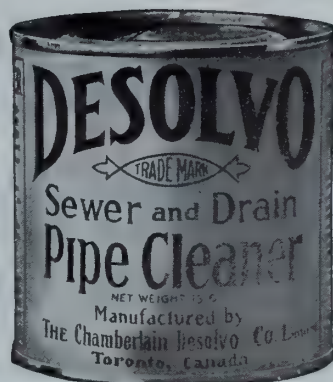
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INDEX TO ADVERTISERS

Allison, K. B.	37
Amherst Foundry Co. .. Inside front cover	
Atlas Engineering Co.	37
Atlas Tank Works	48
Beaton and Cadwell	39
Canada Metal Co.	9
Canadian Brass Co.	2
Canadian Tube & Steel Products	48
Chamberlain Desolvo Co.	46
Crane, Limited	3
Cunningham, W. H. & Co., Ltd.	41
Dennis Wire & Iron Works Co., Ltd.	4
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co. .. Outside front cover	
Fittings, Ltd.	44
Galt Brass Co. Back cover	
Gendron Mfg. Co., Ltd.	48
Hause Mfg. Co., Chas. F.	48
Hourd & Co.	48
Hoyt Metal Co.	37
Hall Zyrd Foundry Company, Ltd.	
International Malleable Iron Co.	35
Jardine & Co., A. B.	38
Jenkins Bros.	45
Katie Foundry	48
Kerr Eng. Co., Ltd.	38
Long & Co., J. T.	38
Marks & Co.	48
McIntyre & Taylor, Ltd.	44
Montreal General Tool Co.	43
Morrison Brass Mfg. Co., Ltd., Jas.	42
Mueller Mfg. Co. Limited, H.	33
Pease Foundry Co.	7
Port Hope Sanitary Mfg. Co., Ltd.	24-25
St. Louis Technical Institute	45
Spencer Heater Co.	6
Standard Sanitary Mfg. Co.	10
Steel Trough & Machine Co.	48
United Brass Founders Co.	41
Vulcan Co., Ltd.	43
Wade Iron & Sanitary Mfg. Co.	44
Wallaceburg Brass Co.	5
Williams & Co., J. H.	45
Wolverine, Ltd.	7



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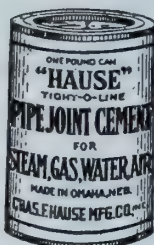
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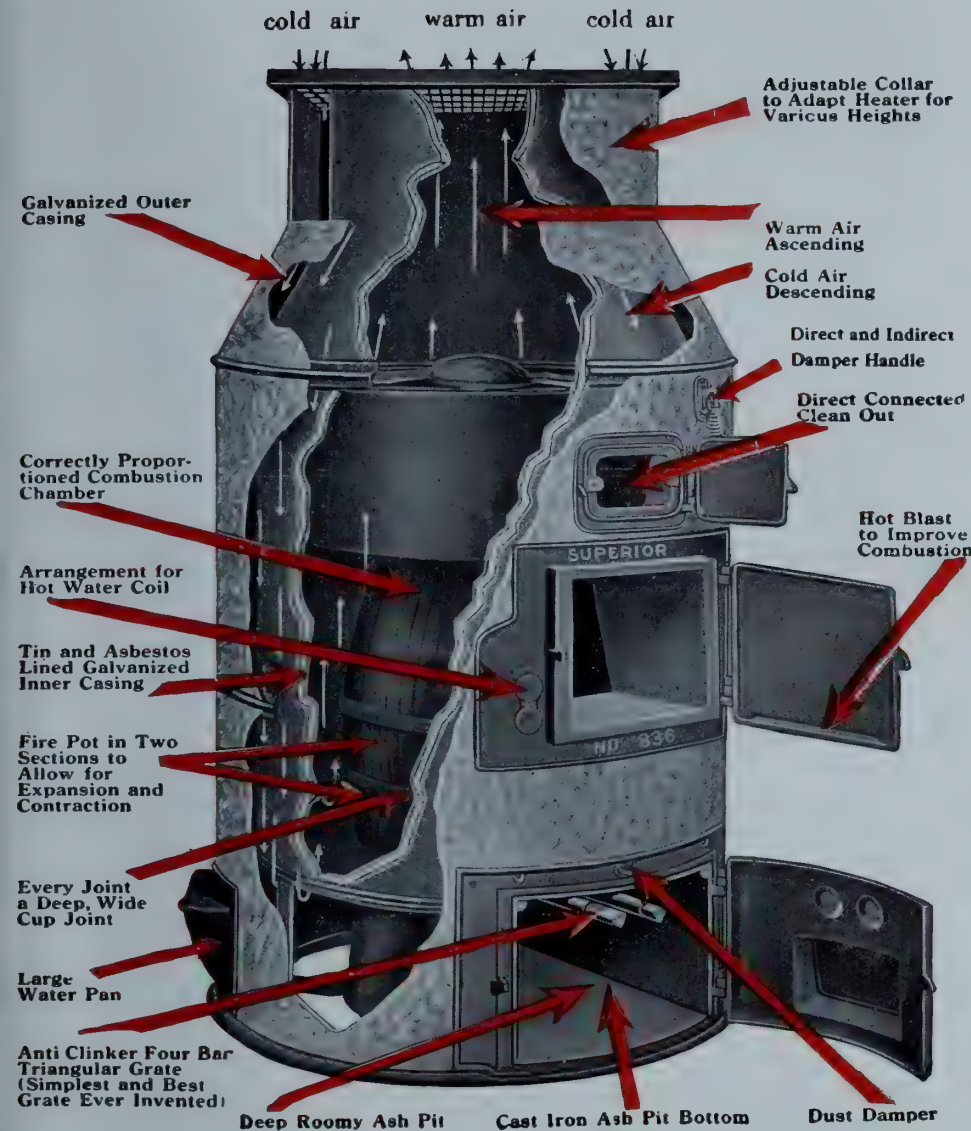


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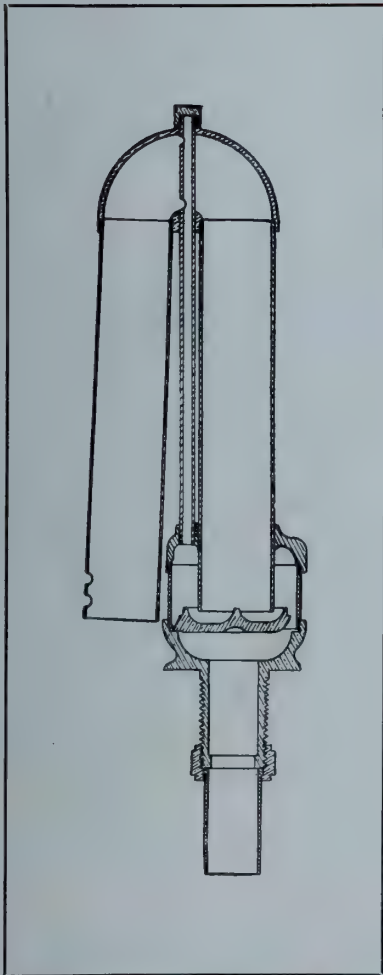
Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, OCTOBER 15, 1921

No. 20

"Emco" Automatic Urinal Syphon



Empire products keep pace with the times. Something new in the sanitary fixture line is added to the ever growing range at frequent intervals.

The engraving shows our new "Emco" Automatic Urinal Syphon.

The inlet cock used with this Syphon can be regulated so tank will fill in anywhere from two to fifteen minutes, and the Syphon will take care of it. It is sure and noiseless.

All Empire products are thoroughly tested before leaving our factory.

Leading jobbers in all parts of Canada handle Empire sanitary fixtures and plumbing supplies.

"If it's an Empire product you know it's right."

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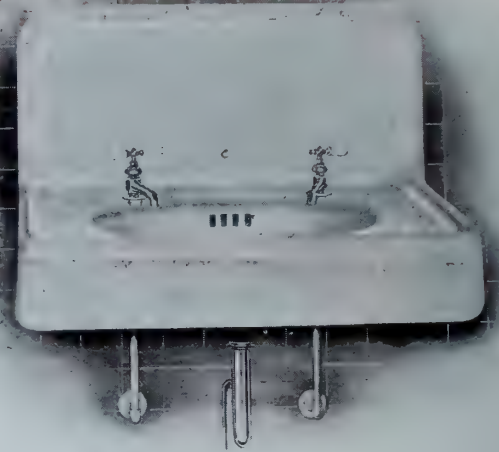
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Ask your Jobber for Beaver Brand.



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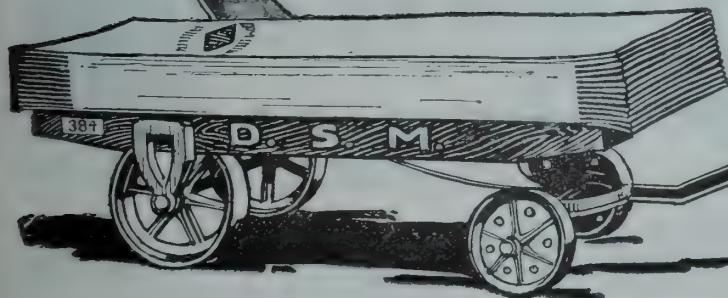
No. 333

Sheet prices have been falling for the last year, but like all falling objects they reach bottom at last.

The mills not only have donated their services free, but have handed out large "gobs" of surplus. Sanity has regained control, prices have advanced lately and although no one would buy when the decline was on, they are all buying now.

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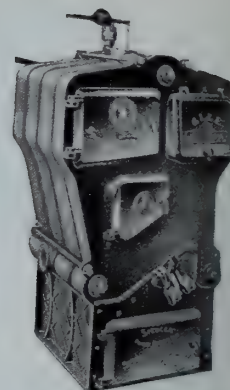
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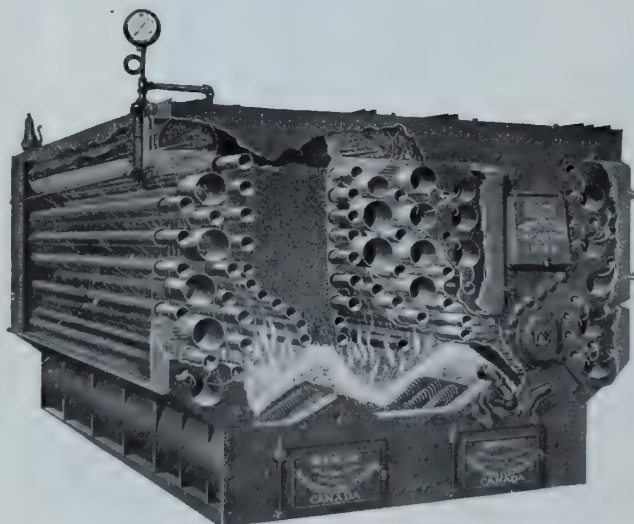
And—This small-sized No. 1 buckwheat coal which the Spencer burns successfully, is always available. The only other known types of boilers that will burn this extremely low priced fuel are the mechanically-equipped boilers, and many factories are now equipping their boilers to burn coal in a powered condition. Of course the Spencer will successfully burn fuel in the larger sizes.

And—The magazine of the Spencer holds a 24-hour supply of fuel. The fuel feeds at a tempered condition in thin fires over the arched grates in exact proportion as the fuel is consumed, thus eliminating waste and allowing perfect control of firing conditions.

And—Spencer Boilers are known to maintain temperatures for a period of 48 hours in the coldest weather without attention.

THOUSANDS of Spencer Boilers are now in operation in various parts of Canada and the United States. We can refer you to almost every known type of building where Spencers are successfully operating. We Manufacture in Canada the Spencer Cast Iron Sectional type of Boilers in ten different sizes ranging in capacity from 600 square feet to 3,600 square feet, and the Spencer for steam is of fire and Water-tube steel construction, ranging in capacity from 1,000 to 10,000 square feet, there being twenty sizes. Let us co-operate with you on the sales in your district. There is a SPENCER for every heating requirement.

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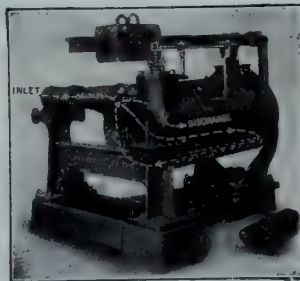
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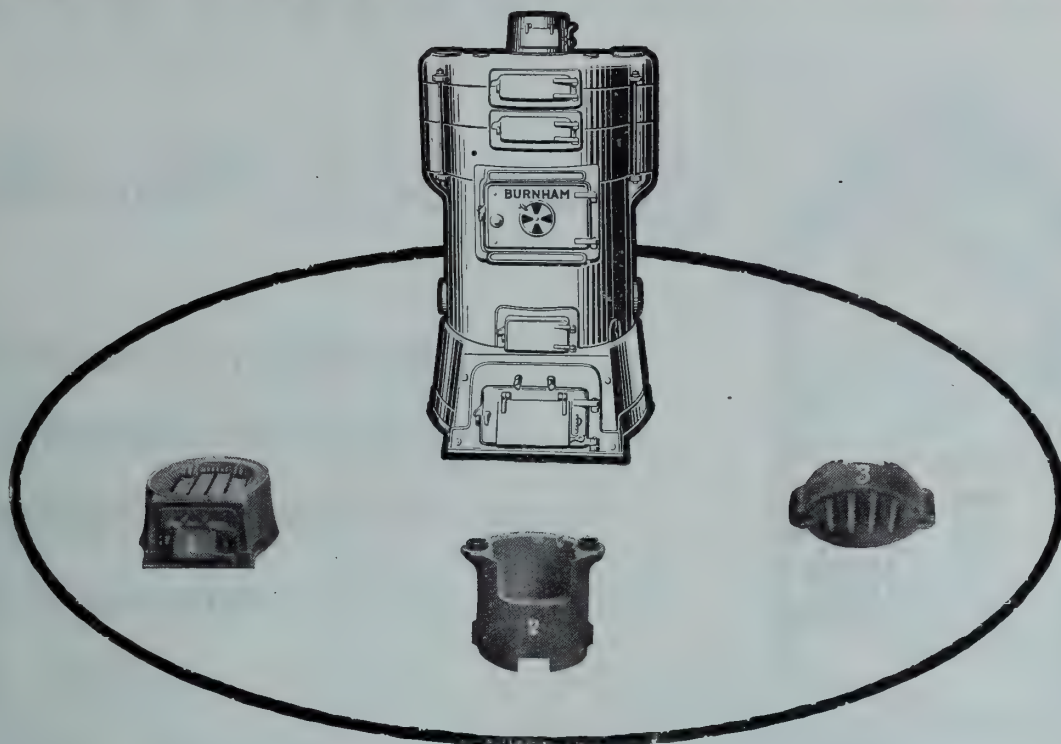
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If you want a gas heater that will pay you over and over again by pleasing and satisfying your clients investigate the PRESTO. It builds business and good will. Write now—while you have it in mind. A post card will do.

The Presto Manufacturing Co.
340 Amherst Street
Montreal



"Pot Luck" Changed To Lucky Pot

By Booster Binx

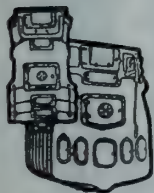
Remember the good old days when round boilers used to be made in one piece above the ash pit.

What fun it was to get them down cellar stairs, even if one did sometimes give you the slip and gave you a couple of weeks off in a hospital ward.

But, best of all, were the good old days that came after that; when fire pots and crown sheets were made in one piece. Then when a pot cracked, you could sell a man half a boiler to repair it.

But heck!—what brutes those boilers were to set up! And a lot of customers got pretty hot under the collar when a pot cracked and your bill came in for the cost of replacement.

Come to think about it, all of us are glad those days of pot-luck are gone, now we have our Lucky Pot. A pot with the crown sheet made in a separate section. Next time we have a chance alone, want to tell you about some **new** thoughts I got from an **old** man.



ROYAL BANK BLDG.
TORONTO

Lord & Burnham Co. Limited

of Canada

(Boiler Department)

Factory:
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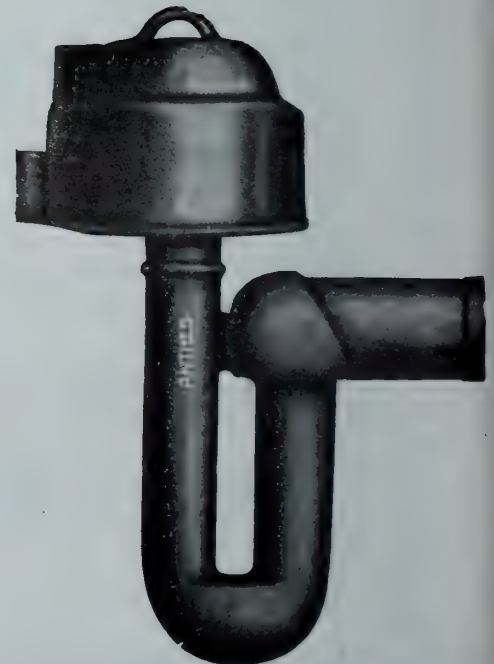
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The Rural

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interests by installing Anthes
countless prospects in
immediately you have
opened the way
work. The
kitchen



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splendid position to promote his
Syphons. Not only are there almost
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A PIECE OF TABLE-WARE
may be solid silver without the
“sterling” stamp, the accepted “Hall Mark”
of quality.

But you don't know.

A Bank might be honest and efficient without Government inspection.

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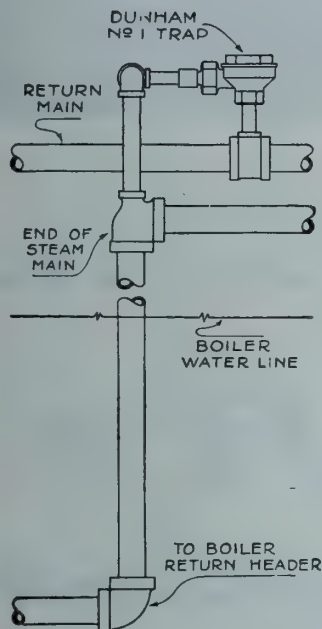
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*No. 5

Dripping and Venting Ends of Steam Mains

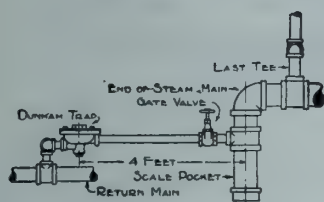


Judgment must be exercised in the provision of drips to remove the condensate from the steam mains. On the Dunham Home Heating System this is best accomplished by a wet drip, free from dirt, and taken from the end of the main or at any points where the main has been raised to pass over obstacles. All such drips should be sealed below the waterline of the boiler before they are joined together into a common wet return to the boiler header.

The end of each main or branch main, where wet drip is applied, should have a vent taken off through a No. 1 Dunham Trap, so that all air in the main can be expelled. Otherwise, an air lock in the end of the steam main will cause erratic circulation of steam to the last riser or radiator connection on the circuit.

The discharge from the Dunham Trap venting the end of the steam main should be made into the dry return as illustrated. The air then passes out of the return piping along with the air from the radiators, and in all cases the Dunham Traps close off and prevent the waste of any steam. (The above method cannot be used on a Dunham Vacuum Heating System.)

In some cases it is impracticable to carry wet drips back to the boiler, and then a Dunham Drip Trap installed as shown would handle both air and water of condensation from the main.



* This is the fifth of a series of talks on steam heating, appearing monthly in Sanitary Engineer. You will find all very interesting and of help in your daily work.

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REG. TRADE-MARK
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, OCTOBER 15, 1921

No. 20

CONTENTS

Plumbing "Replacement" Opportunities	13
Move Plumbing Repairs in Special Sale	14
Small Set of Books for Plumbers	15
Heating the New Parliament Buildings	17-19
Straw Filters for Sewage Purification	20
Patterns for Metal Spheres	21
Editorial Comment	22
Sewage Disposal for Small Communities	23
News From Here and There	27
Conducting "A Business Enterprise"	28
Market Conditions and Tendencies—Montreal, Toronto, Winnipeg	29-38

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“What a Lot of Laundry Tubs Are Being Put in This Fall!”

When you hear women make that remark as often as they have lately, and when you see as many “Aristocrat” Laundry Tubs being unloaded at residences as there have been lately, then, you can bank on it, there is good business for plumbers—for plumbers who order in time.

THE “ARISTOCRAT”
Made in one, two and three parts

THE LAUNDRY TUB
THAT STANDS THE RUB

THE “PUSSYFOOT” CLOSET TANK

Silent, Efficient, Durable

*Every “Pussyfoot” is right
In oak, mahogany or white*

These strong, durable, silent tanks are extremely popular. They are fitted with a large water-chamber valve and guaranteed a perfect, long-life tank.

The silent feature—the “Pussyfoot” feature—is a point of great interest to most prospects.

Specify To Your Jobber

“Pussyfoot” Closet tanks — “Aristocrat” Laundry Tubs
— “Easy” Wiping Solder — “Imperial” Soldering Paste.

Canada Metal Co., Limited

Hamilton Montreal TORONTO Winnipeg Vancouver

We have everything for the plumber.



Spread Modern Plumbing Ideas With—

“Standard”

PLUMBING FIXTURES

In your own vicinity there are many homes with old, unsightly bathrooms fitted with plumbing ten years old or more. By good displays of “Standard” Plumbing Fixtures you can bring owners of such homes to realize the inadequacy of their present fixtures and the desirability of new “Standard” Plumbing Fixtures. Keep the contrast before them by good displays and local advertising.



Standard Sanitary Mfg. Co.
Limited

General Office and Factory : Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
76 Lombard Street

Montreal:
New Birks Bldg.

Calgary:
325 Eighth Avenue West

Hamilton Store:
26-28 Jackson Street West

Vancouver:
860 Cambie Street

“Made in Canada”

When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER.

Plumbing Replacement Opportunities

Closer Co-operation Between Health Officials and Plumbing and Heating Engineers Develops Much Work for Operators—Much Plumbing and Heating Work Available Due to Recommendations of Health Officials—Heating Standards Recommended—Housing Shortage Has Created Difficult Sanitary Problem—Common Defects in Plumbing and Heating Equipment

UNDER prevailing conditions when the lull in the building trades has made it more than ever necessary for the plumbing and heating operator to look to replacement work in existing buildings, as a means of maintaining activity in his business, it becomes interesting to note that certain influences are at work to encourage the adequate installation of plumbing, heating and ventilating facilities. The following details, supplied to Sanitary Engineer by the City Health Department of the City of Winnipeg, indicates the nature of defects being experienced in plumbing and heating installations, also the extent to which the recommendations of health inspectors concerning installations of plumbing, heating and ventilating equipment, are being acted upon. This is one of the most important phases of progress now being made in connection with sanitation and the adequate solution of heating problems and the details given herewith indicate a line of work in which the local plumbing and heating engineers might well co-operate with health officials, particularly in view of the need for securing all possible replacement work. The following details cover the operations of these health officials for the year ending December 31, 1920, which are just now available for Sanitary Engineer readers.

Owing to preventive measures having been taken in time, the number of frozen plumbing and water pipes was greatly reduced even though the winter of 1920-21 was much more severe than the previous year. The report would seem to indicate that a large number of older houses have been repaired in such a manner as to better protect the fixtures and piping. During the last few years the Department has caused a very large number of the old earth dug-out cellars to be rebuilt or filled in. Such old type cellars are a perpetual source of trouble and are extremely insanitary. There are many tenants who would perpetuate them by rebuilding wooden walls and floors. The Department has refused to eject tenants on account of frozen plumbing at the instance of the owners and has insisted on the plumbing being thawed out and properly protected.

There likely were many vent stacks frozen during the winter which were not reported, in fact many tenants do not even know when the vent stack is frozen. In houses provided with intercepting traps the danger of sewer air entering the house through syphoned traps is not so great, but where there is no house-trap, and it is in such houses that the freezing of vent stacks mostly occurs, the condition is serious. In all new plumbing installations in this city the house-trap is now obligatory.

Of the total of 2,178 plumbing defects reported in the year, 1428 were due to defective or choked drains, sinks, baths, wash basins, W. C.'s or other fittings. The overcrowding of available housing accommodation has made the sanitary equipment

of many houses hopelessly inadequate and not always accessible. Such overcrowding is open to grave objection both on sanitary and other grounds. In many cases of complaint it was on the basis of an inadequate supply of plumbing fixtures. The report recommends that if such houses are to be allowed to remain occupied by more than one family the installation of additional plumbing fixtures should be insisted upon without delay.

Although not many new sewers were constructed during 1920 the report shows a considerable decrease in the number of outside privies, this in spite of the fact that a number of houses were newly constructed on streets without sewers.

In regard to the question of the heating of homes, a plea for a standard of heat warmth is put forth in the report as follows:—"It has been pointed out in previous reports that no standard of warmth in dwellings is required by our building by-law, and that as consequence in years gone by a very large number of houses were built for speculation which are not at all suitable for such a severe climate. These houses are still occupied and cost the occupants a good deal more for fuel every year than is at all desirable. At the present price of fuel the aggregate cost each year is enormous. The coldness of such houses is also a source of much inconvenience and sometimes even downright misery to the unfortunate occupants by reason of frozen plumbing and of much expense to both owners and occupants for plumbing bills. Why not prevent this by providing in the Building By-law for a minimum standard of warmth in construction of all new houses?"

Ninety-three cases of defective furnace and heating apparatus were reported. Many complaints were received of lack of sufficient heat, this arising in many cases through spasmodic and irregular firing due to the fact that caretakers in some cases do not live on the premises. There is no law to regulate the quantity of heat to be supplied.

The report points out that in choosing the fuel more care should be exercised and the area of the grates considered. High ash coals cannot burn satisfactorily on grates with only 30 to 35 per cent. air space without forced draft. If grates were installed with air spaces not less than one-half inch wide the smoke problem in many cases would be easier to handle.

The most common defects in plants where horizontal return tubular boilers are installed is the lack of sufficient draft, inadequate air space in grates, and insufficient combustion space. Preventable heat losses are: loss from radiation; air leaks in boiler setting; tubes not properly cleaned or not attended to regularly. It would be to the interest of owners, especially in the smaller apartments, and buildings, to have an inspection made each year by an expert. The results in many instances would be astonishing and well worth the expense. The need for some

(Continued on page 16)

Move Plumbing Repairs in Special Sale

Under Heading "Be Your Own Plumber," the T. J. Minnes & Co., Brantford, Ont., Advertise Small Fittings and Repair Parts with Instructions Governing Installation—Making Specific Appeals In the Ads and Window Displays to Interest the Farmer, Housewife, Property Owner, etc.

A rather novel sale, in so far as the plumbing trade is concerned, was recently arranged by T. J. Minnes & Co., plumbers of Brantford, Ont. This sale took the form of special effort applied to small fittings such as taps, waste pipes, range boilers, etc., on the basis of purchasers being their own plumbers in so far as the installation of such fittings was concerned. In the publicity matter concerning the sale the phrase "Be Your Own Plumber" was prominent.

In discussing the results of the sale with a representative of Sanitary Engineer, Mr. Minnes stated that he had done an enormous amount of business in the lines enumerated and other similar goods. Terms with this firm are all strictly cash. Mr. Minnes admitted that he was a firm believer in cash business and that he is intending to practice it in future to an even greater extent in his business.

Advantage In Cash Trade

Mr. Minnes stated that while he might perhaps have done a bigger volume of

business in this sale, had a credit business been done rather than strictly cash, yet the disadvantages of having accounts on the books with collections rather slow as at present, were thought to outweigh the advantages and the cash business, though of lesser volume, to be more desirable. With collections slow credit accounts are frequently on the books for 90 days and this tying up of the plumber's capital is a serious drawback to the efficient methods needed to conduct business today.

Herewith is shown a group of three ads., recently used by T. J. Minnes & Co. The one entitled "Be Your Own Plumber" was used in connection with the sale already outlined. The ad. states "We will supply you with the best grade of guaranteed plumbing goods and advise you how to install them or how to make necessary repairs to taps, closets, pumps, boilers, waste pipes, etc. See our window display for repair parts. All guaranteed goods best manufacture."

Appealing To The Housewife

Another ad. by this firm dealing with


kitchen equipment states, "A Woman's desire is the convenience and appearance of her kitchen where she spends a great many hours of her time every day. The old kitchen sink is the worry of this room, but why should it be, when you can have, without much expense, a beautiful sink with roll rim and high back fitted with nickel plated faucets. Add for convenience an enamelled iron drain board, or for a little more expense a lovely combination sink and drain boards, as in the appearing illustration. May we give you a price on a new sink for your kitchen?"

The other ad. in the group makes a specialty of farm equipment stating; "The convenience of a city may be yours though living in the country, thanks to the modern home water systems. Nor is this achievement a convenience for rural homes alone, for many water systems are being installed in the city homes taking the place of the old fashioned unsanitary way of pumping the soft water to a tank in the attic.

(Continued on page 16)

Be Your Own Plumber!

Mister



We Will Supply You

With the best grade of guaranteed plumbing goods and advise you how to install them, or how to make necessary repairs to taps, closets, pumps, boilers, waste pipes, etc.


See our window display for repair parts.

All guaranteed goods of best manufacture.

T. J. MINNES & Co.
9 KING STREET
PHONE 301
The Men Who Know How

Thursday - May 5/21

The Convenience of a City




May be yours though living in the country, thanks to the modern Home Water Systems. Nor is this achievement a convenience for rural homes alone, for many water systems are being installed in the city homes taking the place of the old fashioned unsanitary way of pumping the soft water to a tank in the attic.

This little pumping outfit is capable of supplying soft water for the ordinary home; larger systems to water the garden or the stock on the farm. Made for electric gasoline engine, or hand power. Write, 'phone call for further information without obligation to you, for we like to tell about them.

J. MINNES & C
301 PLUMBING — ELECTRIC BY THE MEN WHO KNOW 9 KING ST

A Woman's Desire!

"Standard" Kitchen Sinks



IS THE convenience and appearance of her kitchen where she spends a great many hours of her time every day. The old kitchen sink is the worry of this room, but why should it be, when you can have, without much expense, a beautiful white sink with roll rim and high back fitted with nickel plated faucets. Add for convenience an enamelled iron drain board, or for a little more expense a lovely combination sink and drain boards, as in the appearing illustration. May we give you a price on a new sink for your kitchen?

T. J. MINNES & Co.
Plumbing, Electric—By Men Who Know.
No. 9 KING STREET
PHONE 301

The use of varying specific appeals in the plumbing advertisements is an important factor in the advertising of T. J. Minnes & Co., Brantford, Ont. A study of these three ads by this firm will indicate a definite and strong appeal to the farmer, to the housewife, and to the handy man around the house—to those who prefer to instal their own minor plumbing fittings. The idea introduced in the ad headed "Be Your Own Plumber" was to get people to buy repairs for taps, closets, pumps, boilers, waste pipes, etc., and to instal these themselves on the instructions given by this firm.

Small Set of Books for Plumbers

Proper Bookkeeping in the Plumbing and Heating Shop Commences with Small Set of Books for the Small Operator, Allowing Expansion as Business Grows—Valuable Information Based On Findings of National Trade Extension Bureau

IN RESPONSE to several requests for information concerning the establishment of a small set of books for the small plumbing and heating contractors and in view of the existing need for education on efficient business methods to enable the profitable conduct of this line of business under existing conditions, Sanitary Engineer is reproducing a series of articles on this subject, commencing with this issue. For much of the information contained therein Sanitary Engineer is indebted to the U. S. National Trade Extension Bureau which has made a study of accounting needs of the small plumbing and heating contractors in that country, the results of which should prove helpful to Canadian contractors who apply them.

The books and forms covered in these articles are intended only for the contractor doing most of his own work, or employing only one journeyman. Such a business is of a size that enables the proprietor to be in close touch with every detail at all times. For this reason we are eliminating some of the forms used in larger shops. But, as the business grows and the contractor is obliged to get away from detail he should add the other forms from time to time as needed, thereby protecting his business from the leaks that will occur if he does not do this.

Every business, no matter how small, should have a record of the following:

What They Sell.

What They Buy.

Cash received and spent.

Each of these records should be separate from the other, but the information contained in them should be brought together once a month in order that the owner may know how he stands.

The above information is usually carried in the following books:

Day Book.

Journal.

Ledger.

Workman Order Blanks

The T. E. B. "Day Book," instead of being the usual ruled book, is a pad of "Workman Order" blanks, where all information regarding each job can be entered on one sheet. On the top of this pad are two sheets where the order can be entered as soon as received. This entry is merely a memorandum of who gave the order, where the work is to be done and what is to be done. Below these two sheets are fifty order blanks in duplicate, numbered consecutively. One of these sets is to be filled out for every job to be done. The duplicate copies are made by the use of a back of each pad.

TABULATION OF CONTRACT									
Prepaid (Charged)									
Cost of Job									
Total Cost									
Amount Charged on this Sheet									
Total Charge to Date									
Amount of Contract									
Extra Work									
Total Contract									
Amount Charged									
Amount to Complete Contract									

Name		Charge to	Where to collect	Ordered by
Mrs. H. Hymes				
Location of Job		Colonial Apartments		
Workman		Duffy		
Nature of Work		Fix Sink - Lavatory and Bath Faucets in Apt. 4		
		Fix Sink or Bath Faucets in Apt. 4. Bath for Sink Strainer		
		in Apt. 5		

DATE COMPLETING		MARK TIME STARTING AND FINISHING												DATE STARTING			
7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12

QUANTITY	ITEMS	COST		SELL	
		Amount	Amount	Amount	Amount
1	Brass Cleanout top for lead drain				2.00
1	Trap				.05
1	Basket				3.90
1	1/2" N.P. Under Gump Sink Drift				
1	Strainer and Fuller Ball for Bath				.25
1	Crk.				.05
1	Bath Washer for Basin G.R.				.05
2	" " " "			.05	10
2	Fuller Balls " Bath "			.10	20
	Plus 10%				6.55
					65
					7.20
	5 1/2 hours Service @ 1.70		550		9.35
	1 Truck Trip				75
					17.30

Illustration of Workman's Order

The yellow sheet or carbon copy is to be torn out, and taken by the workman. It is perforated for that purpose. On this sheet is to be entered everything in connection with the job. Every article of material taken to the job, each article returned, and every item of expense, in connection with the job.

When the workman has finished the job, he presents the yellow sheet to the customer, showing just how much time has been charged for, what materials have been used, and what other expenses if any, are to be charged. The customer signs this sheet thus approving the charges as noted.

This yellow sheet is then brought to the office, and all information on it is checked up against that shown on the white sheet. At this time, all information on the yellow sheet that is not in evidence on the original white sheet is added to the entries on the white sheet. These white sheets are wire stitched together, and numbered consecutively just like a bound book. Thus you have a regular Day Book, with a separate page for each job, and all information concerning the job is on one sheet. The proper spaces and headings are provided to show the Selling Price and Cost Price of each item. Also to show the total costs and profits.

The Journal and Cash Book is in three sections; one for Sales, one for Purchases, and one for Cash. Using loose leaf sheets as we do, we put these three separate sections or books all under one cover or binder.

SALES JOURNAL

In the first section, or "Sales Journal," you enter each and every sale. This information is taken from the Day Book or white copy of the "Workman order." This is nothing more than a list of all orders showing in a total the information that is given in detail on each order. By this method you are able to tell at any time what your net profits have been for any period.

The "Purchase Journal" is for a record of every purchase you make, whether for Cash or on Credit. The proper columns and headings are provided to show what each purchase is for, and to enable you to tell what amount has been spent for each item of your business.

The "Cash Book" is for a record of all cash received and paid out.

In the same binder with these is a simple form of monthly report or trial balance that will tell you just how you stand every month, and how much money you have made.

In addition to the "Day Book" and the "Journal," you need a "Ledger" in

which to keep a record of what each customer owes, and what you owe each of your creditors. This should be loose-leaf. Both Ledgers are in one binder.

Your set of books then consists of three books: Day Book, Journal and Ledger.

Is this article we show an illustration of the "Workman Order," office copy of this form completely filled out.

The proper method of using the Sales Journal will be discussed, and the "Workman Order" shown, used as an illustration.

The conditions existing in the shop used as an example here are as follows:
Labor Costs \$1.00 per hour
Labor Sells for \$1.70 per hour
Overhead is 30% on Sales.

Material is priced on the 100 List basis.
Material:—As stated the 100% List method is used in pricing, therefore one-half of the total List Price of Material is taken as the cost. This is \$3.28 which is one-half of \$6.55.

Labor:—As stated \$1.00 per hour is being paid, therefore 5½ hours would cost \$5.50.

Overhead:—Our basis is 30% on Sales, 30% of \$17.30 the Selling Price is \$5.19, which is the amount shown for Overhead.

Truck:—We enter as the Cost of this service the amount charged. Our reason for this is to credit our Truck Account with its earnings, and see at the end of the month or year how near our Truck comes to being self-supporting. By doing this we reduce our Overhead percentage without losing any money. Only those who get Truck service are charged with it.

Now a few words as to how we arrived at our selling Price. Reference is made to the chart issued by this Bureau giving suggested discounts from the 100% List. The last right-hand column covers transactions where list price material is under \$10.00. Taking the line marked Class A where the Overhead is 30% we find it necessary to add 11% to the List Price in order to make the suggested profit, and also to take care of the 30% Overhead. To simplify we have reduced the percentage to 10. This gives us a selling price for our Material of \$7.20. To this we add 5½ hours labor at \$1.70 or \$9.35 and 75c for truck service, giving us our Selling Price of \$17.30.

Let us now assume that all our figures are complete on the "Workman Order."

In addition to knowing what our profit is on each job we also want to know what our profits are for each month. For this purpose we need a sheet on which to enter results of each job, and arrive at a total.

This is accomplished with the Sales Journal. Herewith is given a cut of the top of the sheet showing the entry of the job illustrated.

You will note the headings of the various columns correspond to the headings under Cost Recap on the "Workman

Order," and that they are in the same order. This means that entries on the Sales Journal are nothing but copying from the "Workman Orders." For such headings on the "Workman Order" as are not provided with columns there is a Miscellaneous column. This column has space provided in which to write the name of the account.

Your attention is next called to the headings Debit and Credit. These are to indicate which side of the Ledger Account the items or totals of the respective columns are to be posted on. For instance each item in the Customer's Account column is to be entered on the Debit side of the account you have with your customer in the Ledger.

You will note on the entry shown that the totals of the amounts appearing under credit equals the total of the amount appearing under Debit \$17.30. This follows out the first principle of Double Entry Bookkeeping, that in every entry the Debits and Credits must be equal.

When a page of the Sales Journal is filled, foot each column, and test the correctness of your work by seeing that the sum of the Debit column totals equal the sum of the Credit column totals. When all transactions for the month have been entered, add-up each column and apply the same test. Carry forward underneath the month's figures, the totals from the previous month. You then have a statement of your sales for the month and for the year to date.

There are two points in connection with the Sales Journal to which particular attention is directed. The Loss and Gain columns tell you not only your profits for the month but what you have made or lost on each job. This information serves as a guide as to whether or not work is being figured at a reasonable profit. The Overhead column tells you how much you are getting back on this item to offset your expenses. The total of this column for the month should be compared with your expenses. By this means you can tell whether or not the percentage of Overhead you are using is sufficiently high to cover your expenses.

(The article continued in the next issue of Sanitary Engineer will describe the Purchase Journal. In the meantime we urge, most of all, the adoption of the "Workman Order" and the Sales Journal. Many contractors analyze their expenses but few analyze their sales. It is just as important to analyze sales as purchases.

TWO BATHS A WEEK NECESSARY

Everybody ought to bathe at least twice a week in order to be healthy. The Saturday night scrubbing is not enough. This went down in the Government book as an official rule advocated by the United States Bureau of Education, which has started a nation-wide drive for healthier school children and teachers.

PLUMBING "REPLACEMENT" OPPORTUNITY

(Continued from page 13)

such examination is evident from the fact that fuel accounts of some apartment blocks absorb as high as 35 per cent. of the gross revenue. The devices for the economical burning of fuel and prevention of objectionable smoke are as follows:—

Steam jets; special settings by an arrangement of baffles and arches to ensure proper air mixing; down draft furnaces; sprinkling stokers; overfeed stokers; underfeed stokers; travelling chain grates; coking furnaces.

Recommends More Plumbing Fixtures

In the report of the Tenement Inspector mention was made of a number of old tenements vacated and the buildings overhauled and renovated throughout. In these cases the inspector recommended additional plumbing fixtures—a watercloset and sink at least for each family instead of fixtures used in common. More co-operation between officials of the department and apartment owners was reported. Other repairs suggested and carried out included the repairing of subsoil drains to remedy dampness, etc.

Dealing with the trades, manufacturing plants, office buildings, etc., it was stated that employers were found to be increasingly aware of the importance of maintaining proper sanitary conditions in factories and workshops, and readily acted upon the recommendations of inspectors concerning the installation of adequate plumbing, heating and ventilating facilities.

MOVE PLUMBING REPAIRS

(Continued from page 14)

This little pumping outfit is capable of supplying soft water for the ordinary home; larger systems to water the garden or the stock on the farm. Made for electric, gasoline engine or hand power."

Such consistent advertising as this, appealing specifically to various classes of local prospects has been found by this firm to be specially effective. This is particularly the case when followed up with personal effort and the linking up of window displays of the same lines as are advertised.

DRAINAGE FOR 118 HOUSES

Quebec.—The plans for the erection of 118 houses in Limoilou Ward by the Quebec Housing Company on the North Mount property were submitted to the Roads Committee.

The Lairet River runs through the property and some five small bridges will be needed. The company asked the City to build the bridges. The company is prepared to give the City the streets and to set aside a portion of the land for a public park and playground.

After some discussion the City accepted the plans and will install the waterworks, the drainage and the paving when judged necessary, but the company must build the bridges.

Heating and Ventilating

Heating the New Parliament Building

Central Heating Plant Installed Which Heats Nine Buildings—
The Main Steam Pipe Runs Nearly a Mile from Central Station
—Forced Circulation and Indirect Heating

WHEN the citizens of Ottawa first heard that their post office was to be heated during the winter by a heating plant situated nearly one mile away, and that this same plant would also heat the new Parliament Buildings, and several others, there were not lacking those who said it could not be done. Dismal prophecies of failure and money wasted were freely indulged in, but to-day the plant is a complete success, and has saved money instead of wasting it.

The consulting engineer for the plant, M. F. Thomas, of Toronto, and the contractors, W. G. Edge, Ltd., of Ottawa, have been congratulated on the successful carrying out of the scheme, which is a big one. In fact, one cannot help but pay an involuntary tribute to the broad vision of the engineer who conceived the idea and carried out the arrangement with all the infinite details necessary to its successful completion. It is one of the biggest, or possibly the biggest, central heating scheme on the continent of America, and as it stands at present is only half the size it will eventually be, when the additions provided for are made.

Heats Nine Buildings

The power house is situated on the banks of the Ottawa River, at the foot of the cliff, round the top of which winds the famous "Lover's Walk." The cliff was cut away at this spot to admit the building of the power house. The buildings supplied with heat are nine in number, and starting from the plant and going east they are as follows: Department of Soldiers' Civil Re-establishment, Supreme Courts, West Block of Parliament Buildings, the new Parliament Buildings, the old library which was left standing after the fire, the East block of the Parliament Buildings, the Longtin Block on Wellington Street, and the Ottawa Post Office. Some idea of the heat supplied may be gathered from the fact that there are between 13,000,000 and 14,000,000 cubic feet in these buildings. The new building is arranged so that the air can be changed four times every hour.

The length of the tunnel from the boiler room to the post office is prac-

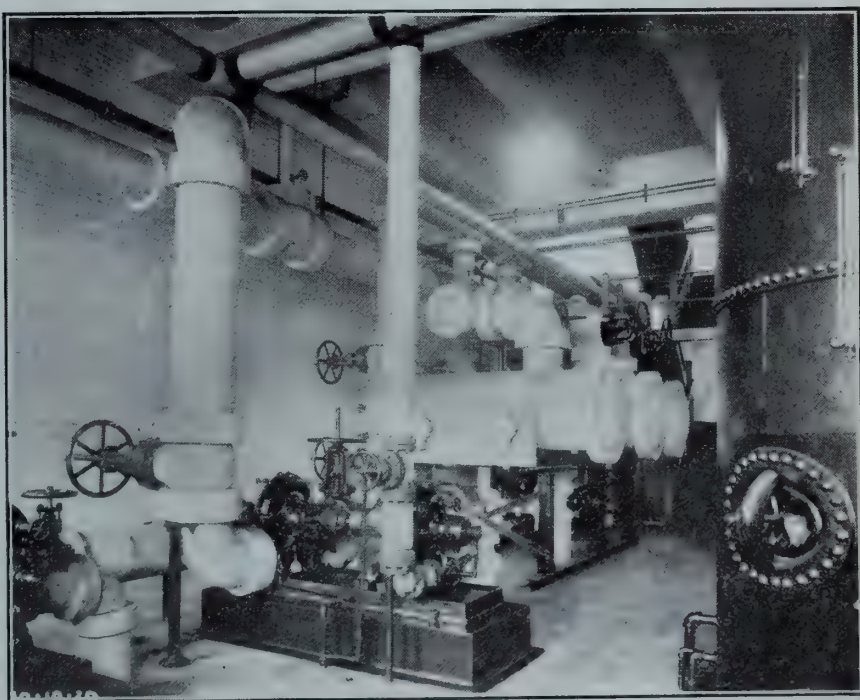
tically one mile, and it contains the main steam pipe, the summer heating line, the hot water circulating pipes, two in number, the steam condensation return, and the air line. These pipes are all arranged on the side of the tunnel, and a clear space left for walking and effecting repairs. The tunnel is about 8 feet high, well lighted and dry.

The Heating Plant

The entrance to the plant is from the top, which is on the street level and about 85 feet above the river bank on which it stands. The ground in front of the power plant is mostly reclaimed. The front wall of the building runs in behind the cliff, which was blasted out to make room for it. At the other end is the wall left rough to accommodate the new addition when it becomes necessary. Four square openings right in the bottom of the wall are in communication with the ash pits and supply air for the fires. They are arranged with

dampers, so that the supply can be regulated in very cold weather, and according to the number of boilers in use. The top of the stack is 175 feet above the top of the boilers, and natural draft is used. On the top of the building a coal weighing scale has been provided, but this has not been in use as yet. The four windows above the square openings are in the boiler room, and the blank wall above them is the outer wall of the concrete coal bunker, which has a capacity of 1,800 tons. This is filled from the top, and at present the coal is all drawn by teams, but eventually a railway siding will be run in so that the gondola cars can unload direct in the bunker. It is quite probable that when the full plant is installed provision may be made for receiving coal by water and elevating it up to the bunker.

One enters the power house by means of a small house erected alongside the scale house, and first of all pass down three flights of iron stairs till the chief



Forced Circulation Heaters, Pumps, and Expansion Tank.

engineer's office is reached. This is a large square space, containing the instrument board and a comfortable desk. On the other side of the partition behind the instrument board are the toilets and shower baths for the plant staff. There is ample room on this landing for the installation of a lighting plant if this should ever be considered. In fact, all through the power plant there is ample space. The means of entrance, and the continual descending of ladders after one gets in the plant, are strongly reminiscent of sea-going days, and we do not recall any plant that is quite so much up and down as this. However, it makes an excellent arrangement, and an elevator is installed to take passengers and freight from the lower floor to the street level. The boiler room can be reached by team or truck by a roadway running round the end of the power house on to the river bank, so there is no difficulty in getting supplies or spare parts to and from the plant. In the chief engineer's office we met the engineer in charge, W. McIninch, who took no end of trouble in showing us around and imparting all the information we could wish for. He has been on the job practically since its inception, and is thoroughly au fait with everything in connection with it. Incidentally he takes great pride in its successful operation, and chuckles with satisfaction as he tells about those who prophesied its utter failure. With Mr. McIninch in the lead we descended some more ladders and started our trip from the proper place, that is the firing floor of the boiler room.

The Boiler Plant

The boiler plant consists of four water tube boilers of 500 horsepower each. They are fitted with stokers, and the grate surface is 92 square feet per boiler, a total at present of 368 square feet. The coal is fed from the overhead bunker into a travelling hopper, which automatically weighs it, a scale on the floor level punching a ticket, which is kept as a record of coal burnt. The ashes are carried along a duct under the floor by a drag conveyor, and at the far end of the building are delivered to a bucket elevator, which delivers them into an overhead bunker, from which they are dumped into the carts. Eventually, of course, there will be a siding here and the ashes will be loaded on to the railway cars direct. Each boiler is fitted with an 8-inch steam pipe, discharging into a 12-inch main header, which delivers the steam to the buildings. This header is carried on rollers on top of the boilers, and the connections to each boiler are made through a U-bend to allow for expansion. The header itself is connected to the main pipe going through the building by a similar bend, and ample provision is thus made for expansion in both directions. Each boiler is fitted with a draught gauge, and the breeching between combustion chamber and stack of each boiler is fitted with a thermo couple, which is connected to a five-point recording pyrometer in the chief engineer's office, so



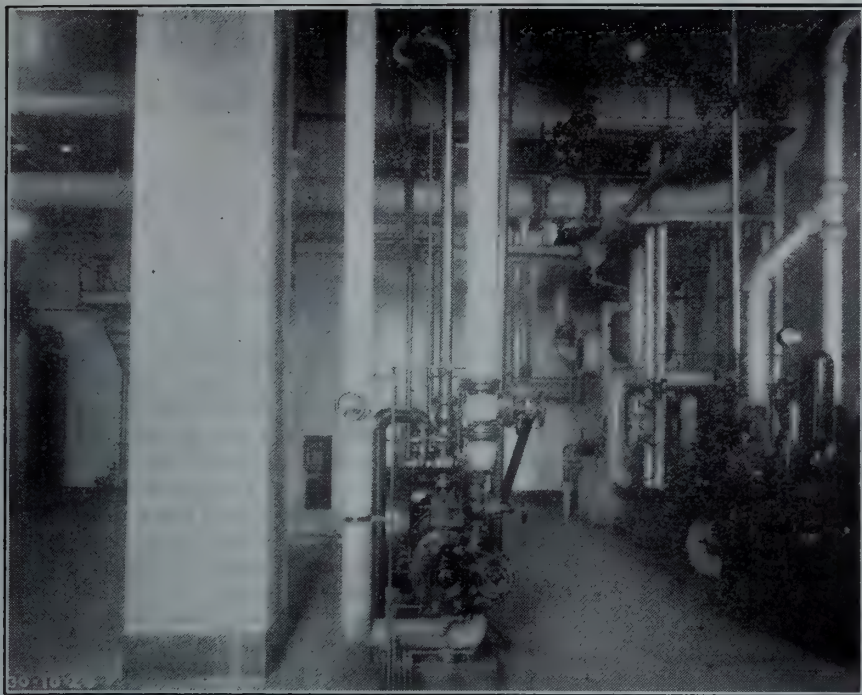
Another View of Heaters.

that a record can be kept of the stack temperature of any boiler over any period wished. The feed header from the main feed pumps is carried along the top of the boiler, 4 inches diameter, and is reduced to 2 inches at each boiler, while the pipe leading to the second drum is reduced again to 1½ inches diameter.

The feed water is supplied to the boiler through a heater and delivered to the boiler by outside packed pumps 16 x 9 x 20 inches. One of these pumps can be seen in the right hand corner of the illustration showing the pump room, which is on the ground floor, just alongside the boiler room. Between the feed pumps and the heater are installed the vacuum pumps, 10 x 14 x 20, which handle the returns from the steam lines and maintain a vacuum of 10 inches on the return line. It is very creditable to the workmanship on the return pipe lines that a vacuum of 10 inches can be maintained through all the thousands of feet of pipe that go to make up the return lines throughout the buildings. On the left, close to the column, can be seen the steam-driven air compressor, while in front of that machine there is another of the same size motor driven. The compressors are 9 x 8 and the electrically driven machine is belt-driven from a 25 horsepower 220 v. 2-phase induction motor. These compressors supply air at 110 pounds pressure to the buildings, and this is reduced down to the required amount for operating the thermostatic valves, elevator doors, etc., in the various departments. The main steam pipe comes down in a bend from the boiler room, and extends across the pump room ceiling. It goes up on the other side of the pump room to the floors above and the tunnel entrance.

The Forced Circulation System

The new building of the Parliament Buildings is supplied with direct hot water radiation, the water being circulated from the power house. The Commons chamber, Senate chamber and corridors are supplied with indirect heating by means of fans. The forced circulation system is installed on the third floor of the power house, that is the floor just below the street level, and a little below the entrance of the tunnel. There are three heaters installed, which are furnished with exhaust steam from the pumps on the lower floor, but during the past winter one of these has been found quite sufficient to supply the new building. About 50,000 gallons of water are in circulation, and this water is circulated by a turbine driving a centrifugal pump. The heaters are arranged so that they can be supplied by steam through a reducing valve in case of there not being sufficient exhaust steam to supply the necessary heat. The water in the system is under an air cushion of 90 pounds per square inch, which is supplied to the expansion tank which can be seen in the right of the illustration. A meter is installed, which is shown in the other view of the heater room, which records the amount of water flowing through the system at any time, as well as keeping a permanent record. The recording thermometer on the left of the board is provided with a double pen, which records the temperature of the water returning from the building. It is a remarkable fact that in the most severe weather experienced so far the difference in these temperatures has never exceeded 14 degrees. There is another recording thermometer connected to the outside air. The mains carrying the hot water to the building are 12 inches diameter. The



Air Compressors, Feed Heater, Feed Pumps on Lower Floor.

entrance to the tunnel is in the left hand corner of the heater room and cannot be seen in either views here shown.

The Tunnel

From the level of the heater room one mounts a short flight of the iron ladder and then steps directly into the tunnel, which stretches away into what seems a limitless distance. The tunnel follows the course of Victoria Street, the roof of the tunnel being about four feet under the street level, and gradually mounts up towards the eminence on which stands the Parliament Buildings. It then goes under the famous Lover's Walk, and then jumps up a stage into the basement of the new building. Before one reaches here there have been several taps of the main pipe, to supply the various buildings before enumerated, and there are some good examples of pipe bends. On the various lines there are a large number of expansion joints, and these are all the sleeve type. There are 15 of these joints on the steam line and 24 on the hot water line, with five on the return line.

The Air Washing Plant

The indirect heating plant for the Commons chamber, Senate chamber and corridors is in the basement of the new building, and is supplied with steam from the main steam line from the power plant. The fan installation consists of 17 fans, seven of which are on the air supply and ten on the exhaust side. The total heating surface of the heaters is 10,341 square feet and the capacity of the seven supply fans is as follows: 35,000, 20,000, 15,000, 25,000, 20,000, 15,000 and 15,000 cubic feet per minute, the total capacity being 145,000 cubic feet per minute. The air is supplied after passing through air washers and there are seven of these washers. The

fans and washers are installed at each end of the building and the air is carried to the various rooms through galvanized iron ducts. The direct radiation provided in the new building is in all 44,341 square feet.

The illustration taken in the basement of the new building shows the pumps for supplying the air washers in the foreground. These are motor driven. On the left is shown the casing of one of the air washers, one of the fans being seen on the right. The air duct can be seen above, as well as some of the piping. Where this photograph is taken is probably half-way from the power plant to the extreme end of the line.

Future Plans

The plant will be probably doubled in the near future, as the Government are contemplating erecting a number of new office buildings for departmental purposes, all of which will be supplied from the central heating plant. There is ample room to increase the boiler room installation by the addition of four more boilers, and it is proposed that when this is done and the new stack built to care for them, the two stacks will be enclosed in an ornamental stone tower. This would undoubtedly give the whole structure a very pleasing appearance when viewed from the outside. In the pump room there is plenty of room for addition, and judging from the performance of the plant so far there is ample heater installation to care for everything for some time to come.

A Saving Here

While no attempt has been made as yet to obtain economical test data, pending the completion of the job in all particulars, some idea of the benefit obtained from the plant can be given. For

(Continued on page 38)



View of Air Washers and Pumps.

Straw Filters for Sewage Purification

Experimental Work Demonstrates Value of Straw as a Purifying Agent—Details of Trial Installations—Average System of Sewage Disposal Wasteful from Agricultural Viewpoint

By E. H. RICHARDS and M. G. Weeks before Institution of Civil Engineers.

IT IS universally recognized that the systems of sewage disposal in general use among civilized communities are very wasteful from the agricultural point of view. Only a minute fraction of the fertilizing value in waterborne excrement is returned to the soil, and even this small portion is generally confined to insoluble matter or sludge, of low manurial value. The latest process of sewage treatment by activation promises to improve the quality of sewage sludge very considerably, provided that it can be dried economically, but this process seems to do little more than the older methods such as percolating filtration, in the way of recovering the most valuable part of sewage.

On the average, three-fifths of the nitrogen in sewage consists of ammoniacal compounds derived from urine. Owing to the great dilution of the ammonia no practical method has yet been devised for recovering this nitrogen. In efficient purification works most of the ammonia is oxidized to nitrate and flows away as effluent to the sea, while the rest is discharged into the air as nitrogen gas. This applies in varying degree to all purification processes, including activated sludge.

Agricultural bacteriologists and chemists have known for many years that micro-organisms commonly found in the soil are capable of assimilating ammonia and converting it into some insoluble organic form, probably, in part at any rate, as portion of their own bodies.

Recent researches carried out by Hutchinson and Richards at Rothamsted Experimental Station on the fermentive changes of nitrogen and carbon, which are of fundamental importance to agriculture, have indicated a means whereby the highly dilute ammonia of sewage may be recovered and made available as manure.

Laboratory Experiments

The laboratory experiments which led to the construction of the straw filter at Wainfleet were briefly these:—

A dilute solution of ammonium carbonate, of strength equal to a very strong sewage—i.e., 10 parts of nitrogen per 100,000, was passed through a percolating filter of wheat straw at the rate of 250 gallons per cubic yard of straw per day. On the first day 5 per cent of the nitrogen passed on to the filter was removed, the amount increasing steadily up to the twentieth day, when only 1 per cent of the nitrogen in the artificial sewage was found in the effluent, the remaining 99 per cent. remaining in the filter. The filter was then mature and

continued to remove practically all the nitrogen fed to it until the saturation point was reached.

In the case of wheat straw the filter continued to remove nitrogen until 7 parts had been fixed per 1,000 parts of dry straw. On dismantling the filter the straw was found to have retained 86 per cent. of the nitrogen contained in the original ammonia solution. Twenty per cent. of the dry matter in the straw had disappeared in the process of fixation, so that the nitrogen in the final dry matter had been raised to 1.33 per cent.

The effluent was brown colored but non-putrefactive. It contained too much carbonaceous matter in solution to pass the Sewage Commission's test for dissolved oxygen absorption. When the straw filter effluent had run through an ordinary clinker percolating filter, an effluent was obtained that would pass both the standard tests, but was still very brown in color.

The experiment was then repeated with actual sewage from the Harpenden Works. The results were the same as in the first experiment.

When the straw has become saturated with nitrogen it can be removed from the filter, and if stored in heaps will continue to ferment with great improvement in its physical state regarded as a substitute for farm-yard manure.

At this stage of the experiment (May, 1919) Richards and Hutchinson chanced to meet M. C. Weekes, then Chief Engineer to the Board of Agriculture, who was faced with the problem of providing some method of sewage disposal for a huddled camp of 300 navvies to be engaged on the Board's land reclamation scheme on the north-west shore of the Wash. Only urine, cookhouse and ablution shed water would need treatment, but the concentration of the sewage liquor would probably be excessive, and liquors of this nature do not yield readily to treatment on percolating filters.

As the experiments described above had just been completed, the possibilities of a straw filter were discussed and ultimately a scheme on these lines was put into operation.

Straw in Sections

The original experiments had made it clear that clean straw was not active in removing nitrogen, but that it gradually became more so as sewage was passed through it, the best results being obtained after 20 days of treatment. For this reason it was decided that the filter must be in sections and that the straw

must be passed from section to section so that the sewage always met the newest straw first and finished by passing through the most active section. It was also decided that three sections would be sufficient, as this would give one section fully active and another nearly so, when clean straw had to be added. The first intention was to construct three shallow beds arranged in steps but when the details came to be got out, it was found that the head required to give three systems of distribution was too great to make the scheme practicable, and further that there would be considerable labor in working the straw from one bed to the next.

Finally a filter was constructed as follows. An angle-iron frame-work, 20 ft. long, 10 ft. wide and 7 ft. 6 in. high, was fixed over a sloping concrete floor, with two main horizontal members, one 2 ft. passing along each side. On these members 1 in. diameter galvanized iron pipes, 12 ft. long, were laid spaced at 4 in. apart, centre to centre; the length of the pipes allowed them to project 12 inches beyond the frame work at each end to the bed 3 ft. above the upper of the two floors to give a hand-hold for drawing.

Transverse horizontal angle-irons were fixed across the bed above the upper of the two floors so formed, to tie the verticals together and also to carry the distributing troughs. Two V-shaped wooden troughs were laid over the filter, the sides having notches about 12 in. apart with a nail driven under each to act as a drip point.

This type of construction made it very easy to pass the straw from section to section of the filter. When the ripest straw had been raked out from the bottom layer, the attendant would begin at one end and draw out each pipe in turn until the whole of the straw that had been the second layer had fallen on to the concrete floor. He would then replace the pipes and draw those from under the top layer, letting that down in turn. The upper pipes were then replaced and the new straw unloaded from the carts on to them.

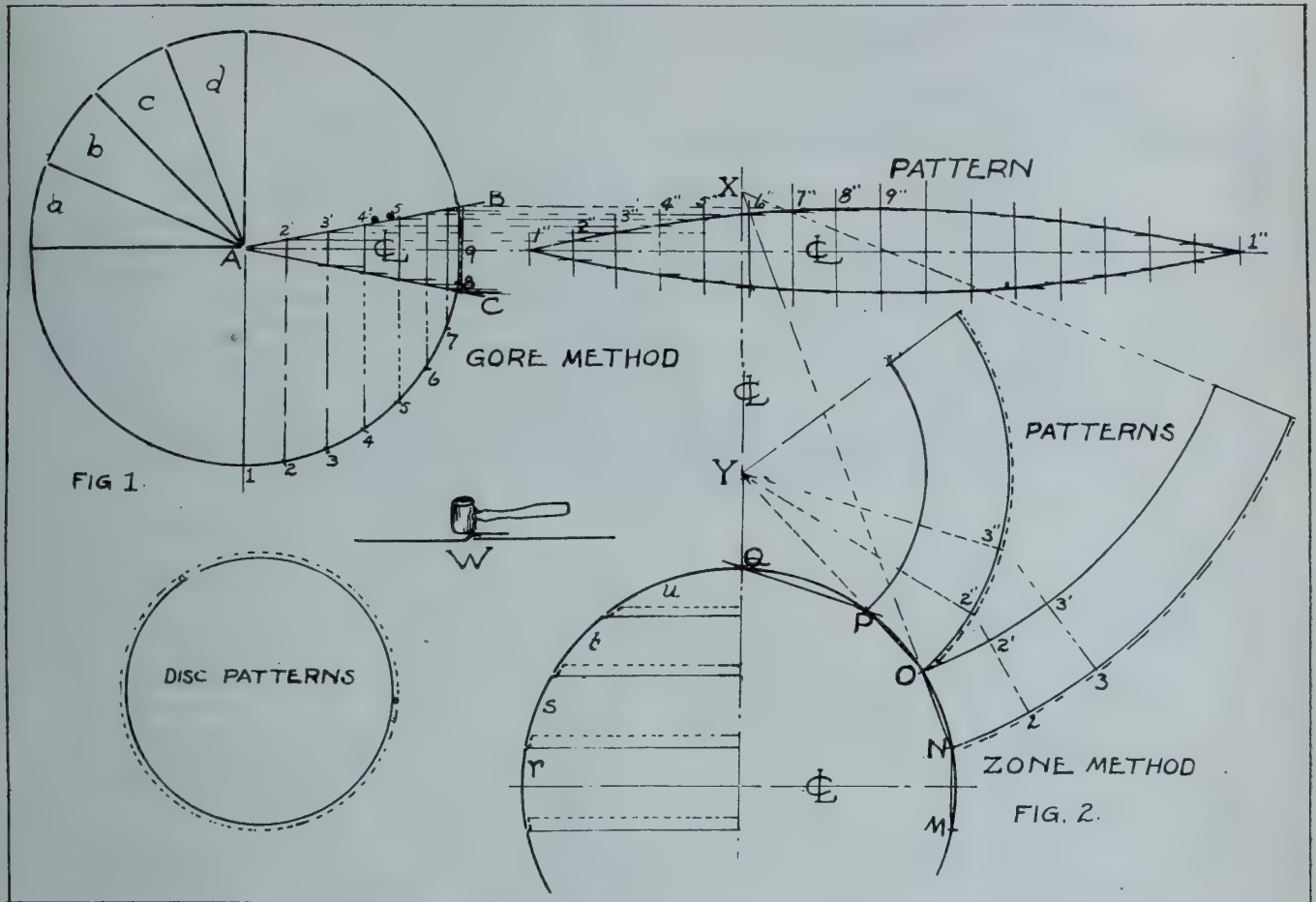
No trouble was experienced in pulling out the pipes, as the friction against the wet straw was very slight.

The spacing of the pipes supporting the straw proved to be about right. There was little sagging down between the pipes and the distribution for one layer to the next was quite good as the sewage came through in drops. The distribution from the troughs was very faulty at first, until the attendant got used to

(Continued on page 26)

Patterns for Metal Spheres

By O. W. KOTHE, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri



RESPONDING to the inquiry of a subscriber who wishes to procure ready made patterns for Metal Spheres, will say that the writer knows of no place where they can be purchased.

Patterns of this kind are of a very simple nature and can be developed in a very few moments for any size met with. To make the treatment clear a drawing is being enclosed, treating both the gore and the zone method.

Fig. 1. shows the gore method, by which the subscriber wanted his patterns. only so the segments are not over 2 inches wide. The writer would say, making spheres by the gore method is not as satisfactory as it should be.

In order to make any kind of a looking job, the segments must be bumped out to conform to the radius of the sphere. This stretches the gores, and makes a difficult job in soldering together. As the gores are soldered "butt edge," expansion and contraction often produces leaks, and that is bad for metal. Then in addition, spheres by this method are very difficult to keep round. The tendency is to finish up in an oblong shape. This is due to the difficulty in butt joining all miters ab-

solutely perfect. The least spread in miter will have its effect on the poles, and that makes for the oblong shape.

With no reflection on the ability of the subscriber—inexperienced mechanics generally always try this method first. As the workman becomes experienced, he adopts the zone method, shown in Fig. 2., which is easier layed out, easier bumped to take the radius of sphere, and is much easier assembled, can be made absolutely round. The lap edges enable secure soldering, and this permits more give and take in adjusting the zones while assembling, and the sphere is decidedly stronger in every way than the gore method.

To lay out the patterns for the gore method in Fig. 1., first describe a circle to the exact diameter the sphere is to be. This can be made any size called for. If you wish your segments to be say 2 inches wide, set dividers to a radius of 1 inch, and space off the quarter circle as 1-9; adjusting the dividers to make the spaces work out equal. Then on each side of point 9 in this case, step off one space on each side; thus giving positions B and C.

By drawing lines to the center A, we have the miter lines for one gore piece.

Now by erecting lines from each point in the quarter circle as 1-2-3-4-5 etc., until they cut the miter lines A-B and A-C as shown. This then makes for us a plan view of the gore with the lines across it as they would appear on the surface of the sphere.

To set out the pattern, set dividers to one of the spaces in the quarter circle as 1-2, seeing so it averages up well, and then step off double the amount of spaces you have in the quarter circle, as on line 1 inch-1 inch. This will be the circumference for one-half of the sphere. Through each of these points in line 1 inch-1 inch, draw vertical stretchout lines and then from each point in the miter lines square over lines until they cut similar numbered lines in the stretchout.

Observe, the idea is to cut off those lines in stretchout to equal in length, those lines in plan of gore. This can also be done by means of a pair of dividers, picking the rises of lines from the center lines. and setting them off in pattern. In this way points 2 inch-3-inch-4 inch etc., in pattern are established. Trace uniform curved lines

(Continued on page 26)

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Appreciating the Plumber

THOSE engaged in the plumbing industry have often prayed that the day will be hastened when people will realize their true value in modern times and stop looking upon them as a "necessary evil" with special qualifications for loafing on the job and for "padding" bills. Whether or not the average plumber has been too self-conscious in this respect is a question. The situation may not be nearly as bad as painted; true, those who use the plumbers' services have a much greater regard for such operators to-day than in the past, largely the result of educational work initiated by plumbers' organizations and the trade press. At any rate an occasional ray of rosy light filters through the clouds when someone awakes to a true appreciation of the professional value of the sanitary engineer of to-day. One of these so-called rays might be the following article which appeared in a daily newspaper recently:—

"Have you ever thought what kind of a place this city would be to live in if there were no plumbing conveniences in the city's homes? Think of the plagues, of the filth, of the unhappiness which would be sure to accompany such a state!

"Then think of what the ideal city could be, with every home comfortably, completely and beautifully furnished, equipped with every necessary household plumbing convenience, the streets clean, well kept, the city as a whole a sanitary and healthful place for any human being to live in!

"Where between these two extremes does our city stand to-day? There are approximately 83,000 homes in this city. Out of this 83,000 about 5,000 are said to have adequate plumbing facilities!

"This was the startling fact brought out in the recent meetings of the Master Plumbers' Association of this city. Awakened out of a rather long sleep, the association has at last decided to stand up and tell the people of this city just where they stand in the plumbing situation, what can be done and what the Association of Master Plumbers can do and is preparing to do in the way of bettering living conditions in the city."



Education on Cleanliness

THE Bureau of Education of the United States Government, in connection with its nation-wide drive for healthier school children and teachers holds that everyone ought to bathe at least twice a week in order to be healthy. This duty is somewhat less severe than the "bath a day" edict which has gone forth in the trade as a basis of education, but when put forth by a Governmental body it is apt to carry considerable weight, particularly when applied as a means of

education in cleanliness in the schools. This early education along the lines of frequent bathing will be helpful to the plumbing industry as these children grew up for they will have the instincts of cleanliness developed as result of their schooling and the overcrowded housing conditions of to-day, with inadequate sanitary equipment, should thereby be given a definite set-back. Anything the plumbing trade can do to have education along this line commenced in the schools will be of distinct value to the trade of this generation and in years to come.



Plumbing and Heating Equipment Needed

INDICATION of how the recommendations of local health officials can be turned into considerable replacement business in plumbing and heating installations is set forth in details given elsewhere in this issue. These details will be of interest to plumbing and heating operators, particularly at this time when every possible opportunity for business is being exploited to the greatest extent to offset the lack of business due to the limited amount of new building recently done. It is in the interests of all in this industry to follow up such leads for all available business. Unfortunately in some other centres in Canada the officials of the local health boards are not so fully aware of the necessity of adequate plumbing, heating and ventilating facilities as those whose recommendations are outlined herein, but more activity on the part of operators, with a view to pointing out the necessity of having the plumbing and heating trades represented on local boards of health, should help in developing trade with a view to giving adequate sanitary and heating service in all buildings whether houses, apartments, office buildings or industrial plants.

More co-operation and an increasing desire on the part of property owners and employers, to act upon recommendations of health officials, is a pleasing feature of the report. There is no question but that the property owners will be interested in any scheme whereby the earning power of their property can be increased either by providing better sanitary facilities or by cutting present costs of operation due to defective equipment. Thus, for instance it is atrocious to think of apartment owners being compelled to pay 35% of the gross annual revenue of such apartment houses for heating each winter. Such owners will be interested in the recommendations of the heating engineer for repairs and replacements which will cut down that huge outlay. Similarly the plumber can point out how the installation of toilets, sinks and wash basins for each family can be made a paying proposition, along with the renovation of drains, etc., to cut down heavy annual repair bills. The whole matter largely becomes one of education, and the plumbing and heating operator who is looking for means of developing business might well work in co-operation with the local health officials and "cash in" on their recommendations or use such recommendations as the basis of personal effort on other prospects. Thus if some apartment owner is enabled to cut his heating costs from 35 to 20 per cent. of gross revenue through carrying out recommendations to increase the comfort of tenants, the heating operator can carry the message to other apartment owners and have the saving figured out in such a way that the investment would pay annual dividends. The plumber has many opportunities for doing likewise. A study of the problems exposed in the aforementioned report will be helpful to operators in this industry and assist them in developing "replacement business" in plumbing and heating installations.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May be Referred to and Studied

Article No. 40 of Series, Illustrations 70, 80.



Continued from last issue

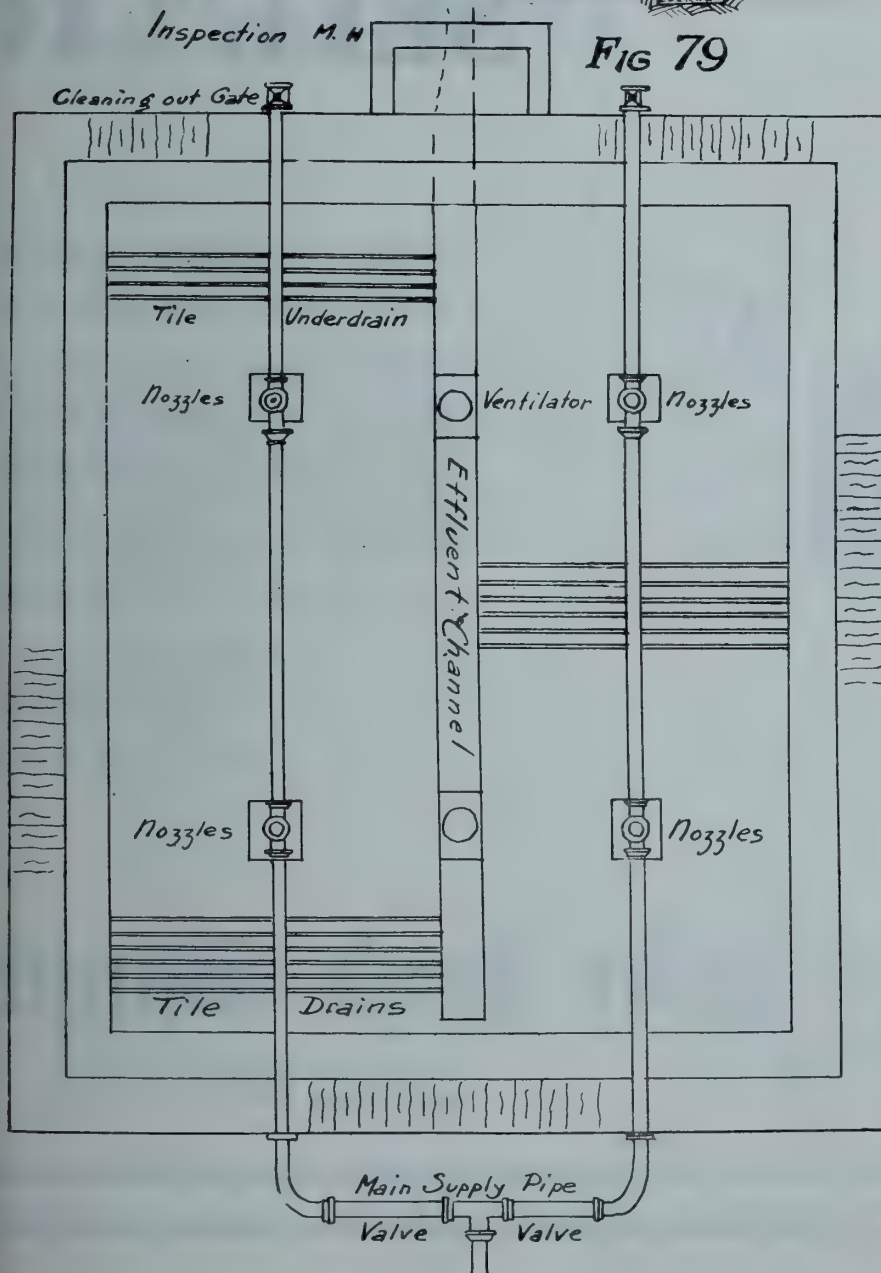


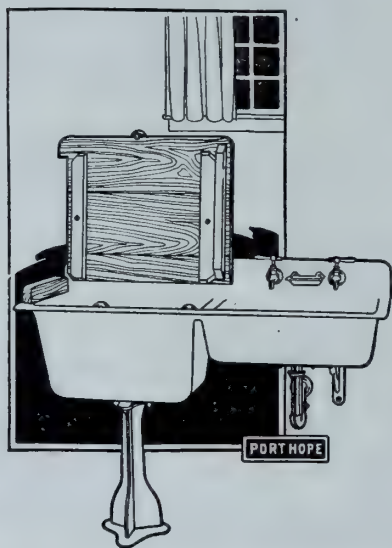
FIG. 80.

FIGS. 79 and 80 illustrate the general layout and plan of the building. The sewage is discharged over a weir through a small catchpit where all the sand, road grit, etc., is deposited, then passes through a screen as shown in Fig. 83 into two suction wells controlled by penstocks or grates for shutting off either suction well for repairs.

The pump house proper is 10 ft. x 12 ft. inside dimensions having two engine bed foundations for two centrifugal pumps and motors or gasoline engine for operating pump. It is always advisable to have a duplicate system of pumping for carrying out repairs, otherwise unless the storage capacity of the wells is large enough to take care of 3 or 4 days supply, flooding will take place in case of any serious breakage. Then again another great objection to having a large storage capacity is the secondary putrefaction which takes place through the sewage storage process which will become objectionable sooner or later.

The motive driving power on these pumps should be arranged so as not to rely solely upon electric current, as in several instances power can be cut off through breakage of feed wires, etc., which would then throw your pumping outfit out of commission so it is generally advisable to have either a small steam auxiliary plant or a gasoline engine to drive the pumps. Automatic floats connected to the switchboard in the suction wells operate the turning on and shutting off of the power so that manual labor and supervision is diminished considerably.

In selecting the style and size of pump one must be governed by local conditions as no two pumping stations are exactly alike. It is the best policy to calculate the number of gallons the pumps must be capable of pumping per hour and submitting same to some local firm for prices and tenders.



PORT

"SELL" YOURSELF



Unless you believe that modern
to convince others of its merits.

"Sell" yourself on the idea. This
of its users—what comfort it adds
its appearance—figure out what
and health. Think of the enormous
of design and superiority of work
considering the service rendered

It is easy to "sell"
material, beauty of
tion are self-evident

Port Hope Sanitary

FACTORIES
Port Hope, Ont.

WINNIPEG OFFICE
405 Tribune Building.

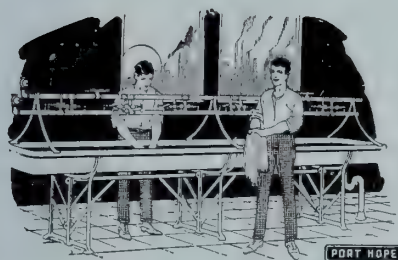
HOPE



SELF--FIRST

ware is a necessity, you cannot hope

modern enamelware protects the health
home—what pride owners will take in
the outlay yields in happiness, comfort
made in recent years in improvement
And the price—how reasonable it is



Port Hope"—Quality of
durability of construc-

Elfg. Company, Limited

HEAD OFFICE
1204 Royal Bank.

MONTREAL OFFICE
604 Southam Building.

PATTERNS FOR METAL SPHERES

(Continued from page 21)

through these points and the pattern for one gore is finished.

Enough of these gores are cut out to make the entire sphere. They are then taken to the bumping block and the straight side is hollowed out to take on the radius of sphere, as diagram a-b-c-d shows. Observe this bumping process produces a double curve, and it is a very easy matter to develop a twist in the metal, which may not only make your sphere oblong, but lop-sided as well.

The zone method is recommended in every case, and for this draw your center axial square to one another, and from its center describe the circle to conform to the size the sphere is to be. Next divide one quarter of circle to such a number of spaces as the width of metal in the belts you can handle.

The first zone is a straight strip as M-N, and is made up in the shape of a cylinder. The two other zones are made on the principle of the taper joint of pipe. Observe in this case the distance Q-P is the center top and bottom disc, and this much can be easily bumped into shape of either tin, iron or copper. Then the remaining space as P-N is subdivided as in point O. Many mechanics who are handy at bumping will make each half in three parts, which only means the lengthening of the zones.

Now extend the center line and join points N-O, also O-P and extend them until they intersect the center vertical line as in points X-Y. From these centers describe the arcs for patterns. Then figure the circumference as 3.1416 times diameter, and mark on the circumference on the outer arc N-3. Notice that this outer arc N-3 must be of equal length as the middle zone M-N. Then by drawing a few radial lines to X as 2-2 ft.; 3-3 ft.—the new spaces 2 ft.-3 ft. will be the true girth spaces of the outer arc of zone II. Set these spaces as O-2 inch-3 inch, etc. If you have more zones, you would draw radial lines to Y and repeat the process.

The disc patterns are described with the radius Q-P, and in bumping the metal stretches a bit, and that makes up for the arc above chord line. The other belt patterns are made in such lengths as will work out of a sheet crosswise the best. Cross seams are riveted, when the entire belt is made into a ring, then nest the upper and lower one together and bump out the segment arc. Take out all hills and hollows and see that the surface is quite smooth and again round out all belts. Next assemble the zones, starting from the top disc and working toward the center. This enables countersinking the seams as at sketch W. All soldering is done on the inside and only the last seam in the center is soldered on the outside, and then the solder is scraped off. Of course, each semi-sphere should be re-scraped to be perfectly true before joining the two halves.

STRAW FILTERS FOR

SEWAGE PURIFICATION

(Continued from page 20)

keeping them adjusted and cleaning the notches, but later it was sufficiently good for this layer, which is not really operative, but merely being prepared to become so.

The pump that fed the filter could not be worked at a slower rate than about 17 gallons per minute. This would not have given too quick a rate of application had both units been in use, but with only fifty gallons storage capacity in the tank first installed it was too fast for one filter. Moreover, it took some time to persuade the pump-driver that the rate of pumping really mattered, so that at first he ran his pump as fast as possible unless he was watched, and the actual rate of application of the sewage was as high as 450 gallons per cubic yard per day, instead of 60-80 gallons required. Under these conditions it is not surprising that the actual removal of nitrogen by the filter was very small. But even then the effluent was free from smell, and neither at this or at any subsequent time was there any nuisance from the filter itself or from the ditch receiving the effluent, nor did flies collect around the filter. The rate of flow to the straw was gradually reduced to 96 gallons per cubic yard per day by restricting the tank outlet pipes with a corresponding improvement in the nitrogen recovery. The best purification, as measured by five days' dissolved oxygen test, was 80 per cent. Negative purification was generally shown by four hours permanganate.

When a new tank of 960 gallons capacity was installed, the improvement in nitrogen recovery was very marked. The best figure recorded was 65 per cent. of the nitrogen in the sewage. On incubation for five days the effluent was invariably putrid. From such a strong liquor, ten times as strong as normal sewage, it is probably impossible to produce a non-putrescible effluent by straw filtration alone.

Wainfleet Straw Filter

Average analysis of samples taken after installation of larger overhead tank.

Parts per 100,000.	
Sewage	Effluent.
Ammonical nitrogen ..	18.92 10.19
Oxygen absorbed in four hours from permanganate	31.88 20.82
Dissolved oxygen taken up in five days	80.4 14.9
Chlorine	31.0 39.3
Dry matter. Per cent.	
Total nitrogen in raw straw....	0.50
Total nitrogen in straw removed from filter	1.62
Total nitrogen after storage for six months	2.06

In order to recover all the nitrogen possible, about 2 lb. of dry straw per man per day is required. During the years' working at Wainfleet the amount of straw used was considerably less. For a period of thirty-five days 2,800 lb. of

nitrogen was pumped on to the straw in the sewage. The weight of straw shown by laboratory experiments as necessary to recover this amount of nitrogen is 5,000 lb. Even if the rate of flow had been low enough to allow proper biological action, only about half the nitrogen could have been recovered. The straw removed was in fact, overloaded with nitrogen all through the experiment. The resulting manure, after storage in a heap alongside the filter, was of excellent quality, containing 2.06 per cent. of nitrogen, and was in good condition for applying to the soil. This manure has no smell whatsoever.

The practical application of this process is so far limited to such sewage works as have access to straw in quantity and where a demand exists for farmyard or stable manure which cannot be met at present. There are, however, many places in this country where these conditions now exist, while the supplies of stable manure are rapidly diminishing.

Straw is by no means the only substance suitable for the process, and further research may show how the less digestible carbo-hydrates in sawdust and other vegetable waste products may be made available.

PUMPING EQUIPMENT
INEFFICIENT

New Glasgow, N. S.—Councillor Laferty, Chairman of the Water Committee, has presented an exhaustive report dealing principally with the pumping operations at the local reservoir.

It contained important data with reference to (1) Consumption; (2) Operation and (3) Equipment. Close observation and frequent tests had driven the Committee to the conclusion that water was being wasted in some mysterious way. Their calculations had been made on a basis of 80 gals. per minute which the chairman thought was misleading as 70 gals. was probably nearer the mark.

The committee then decided that the existing equipment was inadequate and if a breakdown occurred it would prove serious for the town. It took 25 days working 8½ hours per day to fill the reservoir. The pump was kept working practically all night and it would be necessary to have two shifts to attend to this.

The Committee had been in communication with a U. S. concern, who with the installation of their equipment, in addition to the existing equipment, would guarantee pumping at the rate of 150 gallons per minute which is what is really required. The cost of the whole would be in the vicinity of \$1300. All the councillors discussed the matter fully. It was agreed that if anything happened now to the Air Lift the town would suffer. It was resolved finally to bring the matter up at next council meeting, when the written communication from the American Pump Co., would be before them and they then could more intelligently deal with it.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Kingston, Ont.,—H. Appelton has opened an up-town plumbing and heating establishment at 417 Princess street. Contract and job work of all kinds will be done.

NEW COMPANY FORMED

Montreal.—The Victory Radiator Co., Reg'd., will now manufacture the Victory radiators which were formerly made by the Montreal General Tool Co. W. Yorke and A. Bonenfant are the chief executives in the new company, and plans for extension are now under way.

OBITUARY

Allen G. Ingalls died recently at his home in La Prairie, Quebec. Mr. Ingalls was 66 years of age and was well known to the trade in Montreal, as he frequently used the daily press for letter writing on questions appertaining to heating systems. Although having no direct connection with the manufacture or selling of any particular system, he took great interest in solving the different problems arising before the heating engineer, and some of his articles were very instructive and helpful.

E. W. B. Snider, President of the Anthe Foundry Company, Toronto, died this week at his home in Kitchener, Ont. Deceased was a member of the Ontario Legislature for thirteen years and was in his eightieth year. At his death Mr. Snider was also connected with the Waterloo Manufacturing Co., farm implement makers. He was regarded as one of the pioneers of the Hydro power scheme in the province.

PLUMBING BUSINESS ACTIVE

E. Y. Lane, Truro, N. S., says business is good and has never seen it better. At the present time he has three extra men on and is doing all the work that he can handle. There have been a number of new houses erected here this season.

TENDERS

Georgetown, Ont., — Sealed tenders will be received by the Town Clerk, until 8 p.m. on Tuesday October 25, 1921, for the following works:

Construction of Concrete Reservoir and Pump House.

Construction of Concrete Screen Chamber and Weir.

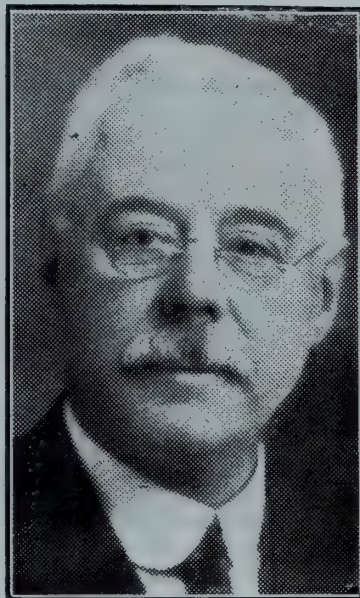
Laying Gravity Main.

Furnishing Cast Iron Pipes.

Furnishing and Erecting Pumping Machinery, two units, 400 gallons each.

DEATH OF A. S. PURDY, PRESIDENT PURDY, MANSELL LTD.

There died at his home in Toronto one of the pioneer business men of the city in the person of Alexander S. Purdy, president of the plumbing and steam fitting firm of Purdy, Mansell, Ltd. The late Mr. Purdy had been ill for about 18 weeks. He was born in Toronto in 1859. In 1875 he became apprenticed in the steamfitter's trade and in 1887 the firm of Purdy, Mansell & Manhinter was formed. Mr. Purdy leaves a wife and three sons in Toronto.



LATE ALEX. S. PURDY

President of plumbing and steamfitting firm of Purdy, Mansell Limited, Toronto, whose death is announced.

APPRECIATES REPORT IN SANITARY ENGINEER

Sanitary-Engineer,
Toronto, Ont.

Many thanks for the publication of the report of our convention of Sanitary Inspectors. More than delighted. Hope that it will promote the welfare of our Association.

Will you kindly mail about 10 copies for mailing purpose amongst our members.

Yours Truly,

G. O. Laflamme,

Chief Sanitary Inspector, Ottawa, and newly elected President Sanitary Inspector Assn. of Canada.

WESTERN ONTARIO NEWS

Contracts for three new siphon lines in connection with sewage improvements at London, Ont., have been awarded to the Webster Construction Co., and Peter Mohan, both of London.

In connection with the new warehouse at London, Ont., for Crane, Ltd., the contract for plumbing and heating has been awarded to Eggett & Company.

J. A. Brownlee, of London, Ont., has secured the heating contract for new \$10,000 school being erected in Manor Park.

The contract for heating and plumbing for new \$5000 residence at London, Ont., for A. Henderson was awarded to Alex. Doyle.

Plans are being prepared for a new \$5000 bungalow for Dr. Geo. Ingham of Strathroy and prices are wanted on hot air heating, plumbing and electrical work.

Thomas Partridge has been awarded the heating and plumbing contract in connection with alterations costing \$20,000 to residence of Wm. E. Robinson at London, Ont.

Kellow and Robinson of Leamington, Ont., had an unusually attractive exhibit of plumbing goods and electrical supplies on exhibition at the Leamington fair. As a result of their enterprise they got in touch with many prospects that will eventually become purchasers.

Eggett & Co., of London, have been awarded the plumbing and heating contracts in connection with remodelling the residence on the Mitchell estate at London into apartments.

NEED NEW SEWAGE PLANT

Kitchener, Ont.—With the idea of stirring the city council to action the Board of Health recommended to council that a new filtering plant for sewage be constructed at Spring street where at present there is a pumping plant.

It was suggested that there might be some objection to this on the ground of expense and the figure of \$100,000 was mentioned as the probable cost.

Sanitary Inspector Rau thought this estimate was high declaring that no pumping was necessary as it was down grade all the way. However an easement would be needed over a farm and that is where the expense would likely be heavy.

"It has got to be started though," said Dr. McGillawee the M. O. H. and the board decided to send the recommendation to council thus placing the responsibility upon that body.

Montreal May Face Water Shortage

If Completion of Aqueduct and Installation of New Pumps Not Carried Out, City Will Not Receive Ample Supply, Says Chairman of Administrative Commission—Mayor Secures Rejection of Report Asking For \$545,000 for Completion of Work

MONTREAL.—If the aqueduct is not completed, and the three new electric pumps not installed in the new low level pumping station at Point St. Charles in the near future, Montreal will face a serious shortage of water. The cause of the threatened shortage is the refusal of the City Council, led by Mayor Martin, to vote the final credit of \$545,000 necessary for the completion of this work. The grounds for refusal are based on allegations made by Mr. Ouimet, civil engineers, that the aqueduct now being built, if completed along the lines contemplated, would leak unduly and cause damage to adjacent lands.

The water level of the river is now dropping daily and were the new aqueduct open, there would be a sufficient head of water to keep the electric pumps working at capacity, which is 75,000,000 gallons of water per day. The aqueduct would hold close to 100,000,000 gallons. As things are now, with the conduit leading directly from a rapidly sinking level in the river, the slightest interruption may result in the cutting off of the water supply in some parts of the city, with attendant discomfort and danger.

The members of the Montreal Board

state that they are confident that there will not be undue seepage and if any damage does result, it will be negligible. The old aqueduct which carried water for years should not give trouble in this regard, except in certain isolated cases which were now being strengthened. The present aqueduct, although deeper than formerly, is on the same site and in the deepening operations carried out no layers of porous material was cut through.

The present works are being constructed, the members say, in the same manner as the adjoining Lachine Canal which does not give a great deal of trouble from leakage, and in order to collect any surplus water which may collect a proper drainage system has been provided. Dealing with Mr. Ouimet's specific contentions with regard to the building of the canal, the Board state that in remote contingency of any unforeseen accident, the canal has been so built that any part of it may be unwatered separately, in order that repairs may be made with all expedition. In concluding the Board state that they are unanimously agreed that the proper method of procedure, both from the economic and engineering viewpoint, is the one the Board has adopted.

SPEND MILLIONS FOR WATER SUPPLY

In connection with the new water system just completed for the eastern division of the Township of York, north of Danforth Avenue, some interesting facts and figures are announced. The water is received in bulk from the city at twenty cents per 1,000 gallons and distributed by the township at thirty cents; the difference is to cover the losses and cost of administration.

About five and a half miles of twelve inch pipes and about eight miles of six inch pipes have been laid at a cost of about \$300,000.

An elevated steel tank capable of holding 200,000 imperial gallons and standing at about 151 feet above street level has been erected at a cost of \$30,000.

Each of the two modern improved pumps has a capacity of 240 gallons per minute, working against the water head contained in the elevated tank.

The eastern water area measures about 1,200 to 1,400 acres and the population is estimated at about 12,000.

The urban portions of York Township now have a large system of water-

mains with about 88 3-4 miles of pipe lines constructed in the districts surrounding Toronto at an approximate cost of \$2,000,000.

UXBRIDGE PLANNING NEW WATER SYSTEM

Uxbridge.—It is likely that the ratepayers will vote on a by-law at the January elections to install a municipal water system.

Engineer E. A. James, of James, Redfern & Proctor, has been instructed by the Council to prepare plans and estimates. It is proposed to secure the water form flowing wells on the property of Mr. James Clyde, and the scheme includes the erection of a standpipe.

Last year the pipe would have cost \$22,000. Engineer James told the Council that it would now cost \$15,000.

Few exhibits at the Leamington fair attracted more attention than those of Lendon & Cook, and the Leamington Hardware Co. The latter firms showing of stoves was splendidly arranged and many excellent prospects were secured.

Catalogs and Booklets

A review of new catalogs, etc., as published by manufacturers, wholesalers and others in the trade for the information of the trade.

"ROSS" HEATERS

A copy of a catalog issued by the Ross Heater & Mfg. Co., Inc., Buffalo, N.Y., has been received. Ross heaters are of the closed or tubular type and are for heating all kinds of fluids through any range of temperature desired. The most common liquid to be heated for commercial purposes is water, but the makers claim that the Ross heater is equally well adapted for heating oil, sugar juice, chemical compounds, or any other liquid where an increase of temperature is required.

Two general types are manufactured by the company; one the instantaneous type in which the liquid is heated as it is being used, and the other is a storage type, which as the name implies, has a storage capacity to be drawn on in emergencies.

The Ross Heater Co. state that by using reasonably small tubes and passing the water back and forth through the tubes a number of times, the highest possible heat transfer is obtained and that for hot water service for hotels, factories, hospitals, schools, apartment buildings, etc., this style of boiler is especially suited. The heaters made for different purposes are fully shown and described in catalog and ratings and conversion tables are given for the various sizes.

Ross surface condensers, airjector pumps, distilling condensers, temperature regulators and evaporators are also shown and described.

Canadian branches of the company are at Toronto, Montreal and Vancouver, B.C.

"PEERLESS" WATER SYSTEMS

An interesting booklet issued by the National Equipment Company, Limited, of Toronto, is their latest catalog covering full descriptions of "Peerless" Water Service systems. The illustrations and reading matter contained therein are not only attractive, but to the plumber and sanitary engineer, are calculated to be of service, as well as instructive.

The Peerless system is specially adaptable for rural and suburban homes, country estates and also large buildings. The simple syphon principle is the keynote of operation, and it is equally reliable with either an electric motor or gasoline engine supplying pumping power. It automatically stops and starts as the pressure in the tank rises or falls. The manufacturers and distributors claim that every convenience of the city home can be supplied and enjoyed in connection with Peerless water systems. The booklet is ready for distribution to the trade on application.

GURNEY'S NEW BOOK

A neatly-arranged and easily reviewed book on stoves and ranges has been distributed by the Gurney Foundry Co., of Toronto. The new catalog presents to the trade, both through illustration and description, the latest types of Gurney products in cooknig and heating service. It is a comprehensive book of 52 pages, interfore the dealer various styles of stoves and ranges, adaptable for wood, coal and gas fuels; while a section is also devoted to the presentation of combination stoves. The book is finished in attractive colors, and numbered by the manufacturers, catalog S-212.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

NUMEROUS price developments embracing both recessions and advances, feature the current markets in plumbing and steam-fitting goods. Lower quotations appear on many lines of pipe fittings including, cast iron fittings, all kinds of plugs, malleable and cast bushings, unions of all sizes, and black and galvanized malleable fittings. Other reductions recently announced cover, Canada plates, bolts and nuts, jack chain, blacksmith, straight shank, and taper shank twist drills, many grades of hammers, stocks and dies, also Trimo and knife-handled wrenches.

Higher quotations appear in eastern markets on copper tubing, rods and sheets, while other markets report declines in copper and brass products of this nature, in spite of the firmer tone and recent price gains on the primary copper markets. Another new list on

range boilers bringing quotations to a higher level all through, has been announced. This change is the evident result of the desire to secure a settlement in this line more in keeping with production costs. The wire nail base has advanced 25 cents per keg. Eastern markets report new prices on enamelled ware, and also higher quotations on closet outfits.

Some higher prices on galvanized sheets have been adopted on primary steel markets, but domestic base prices generally hold unchanged. The current condition of stocks, and the state of liquidation, are still contributing factors to the prevailing boiler tube figures. There is now a better outlook in scrap material markets, while an improvement has also been noted in some ingot metals, noticeably copper, spelter and tin.

MONTREAL MARKETS

MONTREAL, October 14.—Revisions in prices, both upward and downward, are of special interest to the plumbing and heating trade. The recent strength in copper on the primary market has already resulted in higher prices on copper sheets, tubing and rods. It has not yet reflected on other articles prominent to the plumber and steamfitter, but the markets on various lines have taken on a firm attitude. Pipe fittings offer the chief reduction, the discounts on the various lines being changed, thus lowering prices. Range boilers are now selling on new higher quotations. Enamelled ware and closets are both now quoted slightly higher. The advanced prices are not resulting from any firmer tone in the market, but are announced in the hope of recovering the market which has been very unsettled locally. Bolts and nuts, hammers, stocks and dies, and twist drills are all recorded with a reduction in prices.

A feature also, is the improved condition in the iron and steel industry. The trend of the many lines appertaining to the trade have been repeatedly reported with an easier tendency owing to the demoralized state of the market. Although no revisions to higher prices are yet announced, many lines are now firmer with price changes in some cases imminent. Ingot metals have improved in the last two weeks, also a better tone in the scrap market.

TWIST DRILLS NOW 50 PER CENT. OFF

Montreal.

A substantial reduction is made in twist drills when the discount now quoted is 50 per cent off list prices. Former discount was 35 per cent. off. This applies to blacksmiths' drills, straight shank, wire and taper shank.

NEW LOWER BOLT AND NUT LIST

Montreal.

Through the issuing of a new list on bolts and nuts to the trade these will now cost less. The reduction varies, but covers all kinds of bolts, square and hexagon nuts both tapped and blank.

HAMMER PRICES REDUCED 10 PER CENT.

Montreal.

The various manufacturers of hammers announce a reduction of approximately 10 per cent. in their lines. This is effective on machinists', riveting, tinners', sledge and nail hammers.

STOCKS AND DIES AT LOWER PRICES

Montreal.

Through a change in discounts the net prices on pipe stocks and dies have been reduced. Present discount is 22 1-2 per cent. off list prices.

REVISED DISCOUNT ON ENAMELLED WARE

Montreal

Enamelled ware will now sell for slightly higher prices than have been ruling in the past few weeks, the discount being revised to 20 and 10 per cent. off, formerly it was 30 per cent. locally. This makes the second change in quotations in the past month, and prices are now set at figures that existed before the price-shading commenced last spring and summer. There is now a more promising outlook to the market, the new prices while a little higher, are offered to stabilize conditions and bring quotations to a level in comparison with replacement costs. Business is reported as fair among the jobbing houses, buildings under construction now demanding supplies. Following are list prices and discounts.

Sinks, roll rim—			
18 x 30			\$28 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60
Less 20 and 10 per cent.			

NEW HIGHER PRICES ON CLOSET OUTFITS

Montreal

Accompanying the revised quotations on enamelled ware are new higher prices announced on closet outfits. The standard outfit will now sell for \$27.50, an increase in price of \$1.50. Closets are now selling on a much steadier market than has prevailed during past weeks when prices showed a marked variation

among the different jobbing houses. The new quotations, although slightly in advance of former prices, should stabilize conditions as former prices were very low in comparison with replacement costs. Following are revised prices:

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for 3/8 in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	9 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	0 25
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

PIPE FITTINGS BROUGHT TO LOWER LEVELS

Montreal.

Practically all kinds of pipe fittings are revised to lower quotations. The extent of the reduction varies on the different lines, malleable fittings showing a greater price decline than the cast fittings. The new prices of nipples and couplings accompanied the new list on wrought pipe, the change being to increase the discount 10 per cent. In pound goods the net prices are lowered from 2 to 10 cents per pound according to the class. Revised prices and discounts on all lines are the following:

PIPE FITTINGS—	
Cast iron fittings	25
Bushings, cast	27 1/2
Bushings, malleable	20
Flanges	37 1/2
Plugs	27
Flange unions	22 1/2
Malleable unions	42 1/2
Dart unions, black	29
Do., galvanized	8
Nipples, 1/2 to 4" close and short	50
Do., long	60
Do., 4 1/2 to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4 1/2" and larger	10
Pound Goods—	
Class A	0 53
Class B	0 20 1/2
Class C	0 14

COTTON WASTE HOLDS UNCHANGED

Montreal.

Quotations on the various grades of cotton wastes still remain unchanged, although a revision to higher levels has been more or less expected in the past two or three weeks. Cotton goods in general are now settled at higher prices. However, dealers now state that a steady market is looked for. The undertone of the market is undoubtedly firm and if any change occurs it will in all probability be in the upward direction. Following are present quotations.

COTTON WASTE— Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLGR, 15c; X Empire, 14c; X Press, 13c; 6 X Special, 12c. Colored, Fancy, 14c; Lion, 12 1/2c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 22c; colored cotton, 16c.

Above lines subject to trade discount for quantity.

LEAD PRODUCTS MARKING TIME

Montreal.

Current quotations on the various lines of lead products remain unchanged, but the tone of the market is somewhat firmer than has been ruling for some time past. Without exception, metals used in the manufacture of these goods are reported with increased strength on the primary market in the past few weeks. It has been felt too, that prices ruling on the finished product were well down to bottom in accordance with metals on the primary market, and any strength shown here would immediately reflect on the finished goods. However, for the present prices are holding, with the market much firmer.

LEAD PRODUCTS—

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13 1/2
Lead sheets, 2 1/2 lbs.	0 10 1/2
Lead sheets, 3 to 3 1/2 lbs., sq. ft., lb.	0 10 1/4
Do., 4 to 8 lbs., sq. ft.	0 09 1/2
Cut sheets 3/4 lb. extra and cut sheets to size, 3/4 lb. extra.	
Solder, guaranteed, lb.	0 25 1/2
Do., strictly, lb.	0 23 1/2
Do., commercial, lb.	0 20 1/2
Do., wiping, lb.	0 21*
Do., wire, lb.	0 25
Zinc, sheets, casks	0 11 1/2
Do., broken lots	0 12

A BETTER TONE IN

COMPRESSION WORK

Montreal.

Quotations on the various lines of compression goods continue unchanged, but the tone of the market is a little different in the past week from what has prevailed recently. Both copper and brass on the primary markets are showing remarkable strength at present, particularly the former. This will in all probability reflect on most lines of valves and bibbs, and although there is no present indication of an advance in quotations on any lines, the market is now much firmer than formerly. Following are discounts on the various lines:

COMPRESSION WORK—

Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	46%
Roundway stop and waste cocks, std.	40%
Brass steam cocks, standard	10%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%

HIGHER PRICES ON RANGE BOILERS

Montreal

The quotations on range boilers are revised to higher levels on all sizes, both in standard and extra heavy. The new list of figures follow the unsteady market that has prevailed on range boilers for some time, and while new higher prices were expected, it was not generally thought the revision would be to such an extent. For example, the 30 gallon standard boiler was formerly selling on the local market for \$7.50. This

quotation was really the result of price-shading among the various dealers. The new quotation now ruling on this size is \$9.25. Following are the revised prices.

RANGE BOILERS—	Std.	Ex.	Heavy
30 gallon	9 25	11 75	
35 gallon	12 00	14 50	
40 gallon	14 50	17 00	
52 gallon	21 00	26 00	
66 gallon	30 00	36 00	
82 gallon	37 50	50 00	
100 gallon	48 00	58 00	
120 gallon	57 00	67 00	

CORRUGATED SHEETS ARE SOMEWHAT FIRMER

Montreal.

The new lower list on corrugated sheets, reported in our last issue is the last change made in quotations on these products. The trend of the market on corrugated, has been for some time past easier, and at almost regular intervals quotations would be revised to lower levels. The situation is now somewhat reversed and both plain and galvanized and black sheets are on a much firmer market; with corrugated sheets now also recording more strength than has been shown on the market this year. Present list prices and discounts are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	\$ 7 00
No. 26 gauge	7 50
No. 24 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50
Less 7 1/4%.	
Lighter than 24 gauge and wider than 27 inches 75c a square extra.	

EAVESTROUGH AND CONDUCTOR PIPE QUIETER

Montreal.

Current demand for eavestrough and conductor pipe are not as heavy in the past two weeks as formerly. Although the season is advancing, dealers look for a fair amount of business still before the cold weather sets in. Buying has been light all season and with stocks low in the hands of the outside dealers, the later demand from the consumer for trough should reflect to an extent direct on the jobber. The market for trough and pipe is steady to firm, the recent strength of galvanized sheets altering the situation from one of easiness, to firmness. Unchanged prices and discounts are the following:

EAVESTROUGH—	
O. G. Square Bead—Per 100 ft.	
8 inch 10 inch 12 inch 15 inch 18 inch	
\$15 90 \$17 70 \$21 20 \$28 80 \$36 80	
O. G. Round, and Half Round—Per 100 ft.	
8 inch 10 inch 12 inch 15 inch 18 inch	
\$16 90 \$18 70 \$22 20 \$29 80 \$37 80	
Discount 60/10 per cent. off list.	

CONDUCTOR PIPE—Per 100 ft.	
2 inch 3 inch 4 inch 5 inch 6 inch	
\$18 40 \$22 30 \$29 60 \$40 00 \$49 00	
Discount 60/10 per cent. off list.	

CONDUCTOR ELBOWS—	
Plain round or round corrugated.	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent	

NO FURTHER CHANGE IN
WROUGHT PIPE

Montreal
There is no further change in wrought iron and steel piping since the announcement of the new list in our last issue. The demands for wrought pipe are still more or less irregular, with the general movement confined almost entirely to the smaller sizes. With the new list now the selling basis, the market is said to have settled on a fairly steady basis, with an improvement looked for in sales before the colder weather sets in. Following is the new list No. 53:

To Take Effect Sept. 22, 1921.
Standard Butt Weld Pipe S-C
Per 100 feet.

Price List No. 53.	September 22nd, 1921.
1/4 in. \$ 6.00	\$ 8.00
1/2 in. 4.20	6.30
3/4 in. 4.20	6.30
1 in. 5.36	6.97
1 1/4 in. 6.44	8.28
1 1/2 in. 9.18	11.90
1 3/4 in. 12.42	16.10
2 in. 14.85	19.25
2 1/2 in. 19.98	25.90
3 in. 31.59	40.95
3 1/2 in. 41.31	53.55
4 in. 53.36	68.08
4 1/2 in. 63.22	80.66

Standard Lap Weld Pipe S-C
Per 100 feet.

2 in. \$ 23.68	\$ 20.60	\$ 31.82	\$ 37.74
2 1/2 in. 35.10	44.45	47.97	57.33
3 in. 45.90	58.14	62.73	74.97
3 1/2 in. 54.28	70.84	74.52	91.08
4 in. 54.31	83.93	88.29	107.91
4 1/2 in. 72.39	92.71	1.04	1.24
5 in. 84.36	108.04	1.21	1.45
5 1/2 in. 1.09	1.40	1.57	1.88
6 in. 1.45	1.88	2.02	2.45
6 1/2 in. 1.53	1.98	2.13	2.58
7 in. 1.76	2.28	2.45	2.97
8 in. 2.14	2.76	2.97	3.59
10 in. 1.98	2.56	2.75	3.33
12 in. 2.55	3.30	3.54	4.28

STOVES AND HEATERS NOW
ACTIVE

Montreal
Stoves and heaters are now entering the active fall season. Shipments are being forwarded from the local warehouses, and while sales are not as heavy as last year at this time, they are quite satisfactory. The many exhibitions and fall fairs throughout the country have apparently done their part insofar as stoves and heaters are concerned, for sales immediately increased with the commencement of these exhibitions. These seem to prove more beneficial each year, many sales to consumers being made as well as a great help with the dealers' trade.

There seems little likelihood at present of a further price change in any line. The last revision is taking care of present productive costs and it is worthy of note that a slight increase is made on raw materials on the American market. This will not, in all probability, have any direct effect on the situation here for the present, but it leaves the chances of a further revision to lower levels more remote.

COPPER SHEETS, RODS AND TUB-
ING ADVANCE IN PRICE

Montreal.
The strength on the copper market in the primary stage is reflected on rods, sheets and tubing. Sheets now the most marked advance when they are quoted from 1 to 3 cent per pound higher. The

situation of copper in the last ten days has been one of interest. The heavy stocks, accumulated since the close of the war when both the virgin metal and scrap have been in over abundance on the market, caused new quotations on copper to drop to the low level of 11 1-2 cents in the U. S. A. The price of 13 cents is now reached, this advancement taking place in the past ten days to two weeks. With a continuance of this strength it would seem altogether possible that higher prices were imminent on the above mentioned articles.

Following are the revised quotations:

BRASS—	Base
Sheets	0 25
Rods, 1/2 to 1 inch, round	0 23
Tubing, seamless	0 32
COPPER—	
Rods, 1/2 to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier, lb.	0 33
Plain tinned, 16 oz. and heavier, lb.	0 38
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34

BOILERS AND RADIATORS STEADY
TO FIRM

Montreal.
Buying in boilers and radiators is now quite active. Buildings under construction in the past months have now reached the stage where the heating system is required. Quotations on both lines are holding, with an improvement recorded in the tone of the market, but no present indication of a revision in prices in either direction. Prices and discounts are as follows:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.
Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.
Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.
Square or sectional hot water or steam boilers, 15-in., 10 per cent.
For Ontario Government trimmings add 5 per cent.
Square or sectional water boilers, 19-in. to 36-in., 10 per cent. off list.
Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.
Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.
All prices f.o.b. Toronto, Montreal, . Guelph, Hamilton, St. Catharines or Brantford.

BOILER TUBE MARKET ALSO
SHOWS STRENGTH

Montreal
Although no actual price changes are given out on boiler tubes, they are now firmer along with other lines of iron and steel. With the market continuing to show strength, it is a question as to the time necessary before price locally will show a change but it is thought these will not record advances as readily as other lines, such as bar iron and sheets. Present quotations are the following:

BOILER TUBES—	Seamless Lapweld
1 inch	24 70
1 1/4 inch	24 50
1 1/2 inch	24 00
1 3/4 inch	26 00
2 inch	24 50
2 1/4 inch	27 75
2 1/2 inch	27 75
2 3/4 inch	35 00
3 inch	42 00
3 1/2 inch	54 50
4 inch	75 00

SHEET PRICES STILL UNCHANGED

Mon'treal
Notwithstanding the continued improvement in sheets, and the recent advances made in other markets, prices locally remain at former figure on all kinds. It would not be surprising, however, if an advance was made at any time, especially on the galvanized sheets. These seem to hold the centre of attraction, with the demand also showing increase in the past two week. There are no new developments at the mills since advance in prices of a few week ago, but the improvement continues and the future trend seems asured. Following are unchanged local quotations:

BLACK SHEETS—		
10 gauge	4 30	4 65
12 gauge	4 40	4 75
14 gauge	4 50	4 85
16 gauge	4 60	4 95
18-20 gauge	4 80	5 20
26 gauge	4 95	5 40
22-24 gauge	4 90	5 35
28 gauge	5 00	5 50
GALVANIZED SHEETS—		
10 3/4 ounce	6 85	7 75
28 gauge	6 45	7 35
26 gauge	6 15	7 00
22-24 gauge	5 95	6 75
20 gauge	5 80	6 60
18 gauge	5 80	6 50
16 gauge	5 70	6 50
14 gauge	5 65	6 50
12 gauge	5 40	6 50
10 gauge	5 30	6 50

English Standard—		
28 gauge	8 50	7 75
26 gauge	8 25	7 50
24 gauge	7 65	7 10
22 gauge	7 30	6 65
18-20 gauge	4 95	5 20
NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10 3/4 oz. 25 cents per 100 lbs.		
CANADA PLATES—		
Dull.		
18 x 24 x 52s	5 80	
18 x 24 x 60s	6 00	
18 x 24 x 75s	6 30	
WELSH CANADA PLATES—		
Polished.		
18 x 24 x 52s	8 25	
18 x 24 x 60s	8 50	

BRIGHT TIN PLATES		
20 x 28 IC, 112s	18 00	
20 x 28 IX, 112s	20 00	
20 x 28 LXX, 50s	11 25	
20 x 28 LXXX, 56s	12 00	

IRON AND STEEL FIRM

Montreal
With the undertone on iron and steel remaining firm, prices locally are unchanged this week. It was thought in some quarters that prices would have shown an advance before now, but others maintained that while no changes were recorded at the mills, or in the primary markets, there was little likelihood of an increase locally. Following are existing prices.

Common bar iron, 100 lbs.	3 00	3 25
Refined iron	4 00	4 90
Iron finished machinery steel	3 45	
Mild steel	3 00	3 40
Single reeled machinery steel	5 00	5 25
Band steel	3 00	3 40
Spring steel	6 00	
Sleighshoe steel	3 00	3 40
Tire steel	3 00	3 60
Toe calk steel	4 00	4 30
Harrow tooth steel	3 55	
Mining teeth steel per lb.	0 22	
Black Diamond tool and cast steel	0 22	
NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.		
Band steel in scroll bundles, 50c per 100 lbs. extra.		
Flats, iron and steel, 3-16 and thinner, 50s per 100 lbs. extra.		

SCRAP MARKET IMPROVES

Montreal.

A somewhat better feeling now exists among dealers of waste materials. The actual business turnover is still light, although slightly improved in the past two weeks, but enquiries and the general tone of the market now lend encouragement. As one dealer stated "Where there is smoke there is fire." The improvement follows the better tone in the iron and steel market. Scrap material has been dull for a long period, but present indications of an improvement are thought to be a genuine feature and better market conditions are anticipated. Following are nominal local quotations:

Automobile tires	0 75
Rubber shoes	0 02½
Yellow brass	0 05
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02½
Light copper	0 07¾
Heavy copper	0 10½
Wrought iron, R.Rd., No.1 per gr. ton.	10 50
Malleable scrap (ton)	10 50
Pipe scrap (ton)	7 00
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	20 00

INGOT METALS ARE MUCH IMPROVED

Montreal

The firmer tone recorded last week in ingot metals is still maintained and there is every indication of a better tone and a stiffening of prices generally. The volume of business is improving to some extent, and it is generally realized that prices will be higher in the near future.

TIN—This metal is lagging somewhat as compared with others, and there is

still an opportunity to buy at a reasonable price. The market is in a condition where any indication of real buying would be followed by an advance in prices. The strength of Sterling exchange is also an important factor. The local market is firm at 35 cents.

COPPER—The strength shown by New York is unmistakable. The volume of buying has broadened considerably both for local and export consumption. Locally copper is strong at 17 3-4 cts. for electro and 11 1-2 for casting.

LEAD—There is no particular change to report in this metal. Both London and East St. Louis being at about the same level. The demand continues good and there is no sign of any weakness. Local price is slightly higher at 7 cents.

SPELTER—The advance still continues in the U.S.A. and the position appears very firm. It would not be surprising, however, if a quieter period ensued as the advance has been rather rapid after a long period of dullness. It is difficult to buy at less than \$4.62 1-2 for spot with a premium for futures. Producers are more or less indifferent at these prices. The English market also remains very firm. Local price 7 3-4 cents.

ANTIMONY—The market in New York is somewhat quieter after the recent advance, but without any evidence of weakness. Locally the market is firm at 7 1-2 cents for ordinary brands and 8 1-4 for high grade English.

ALUMINIUM—This metal has an easier tone and the market is dull with quotations lower at 28 cents.

TORONTO MARKETS

TORONTO, October 14.—Another extensive list containing important price revisions which are mainly of a downward nature, features recent developments on the current plumbing and heating goods markets. Revised discounts, with consequent lower quotations, are apparent on many lines including cast iron fittings, all kinds of plugs, malleable and cast bushings, unions of all sizes, also both the steel and brass jack chain.

Other price reductions appear on knife-handled wrenches, Canada plates, bolts and nuts; while substantial declines have been given locally on brass and copper rods, tubing and sheets, in the face of the firmer tone reported from primary markets on ingot copper.

Another new list has been announced on range boilers, bringing quotations to a higher level, which is claimed to be more in keeping with replacement costs. Black and galvanized malleable pipe fittings all register price developments; and the wire nail base has been advanced 25 cents per keg.

Higher prices have appeared on galvanized sheets in primary market circles, but the local base price generally holds. The condition of stocks and state of liquidation, are still contributing factors to prevailing boiler tube prices. Iron and steel prices are firmer, with a better outlook. Cotton waste quotations are holding unchanged. There is an improved note of confidence in the scrap material markets, while gains are recorded in some ingot metals, noticeably copper, spelter and tin.

ANOTHER NEW LIST ON RANGE BOILERS

Toronto.

The recent higher price levels on galvanized sheets have been reflected in another new list of increased quotations on the galvanized range boilers. This latest change supersedes the revision on these products recently recorded on the local markets and is mainly attributed to the slightly improved general business conditions, coupled with the advancing cost of the sheet material. As manufacturers have claimed there remained no profit in the low prices that have been evident on the markets during the last two months, the increase in prices at the steel mills afforded an opportunity to stabilize the current quotations on range boilers in an effort to steady the market.

Prices on the 30-gallon standard size are now 50 cents higher than the previous list of two weeks ago, and give a total advance of \$1.00 from the level at which this boiler was being recently quoted. Quotations all through the list give a general increase, varying from 75 cents to \$2.00 and \$3.00 on the different sizes. Following are the revised quotations:

RANGE BOILERS—		Standard	Ex. Heavy
30 gallon	.....	\$ 9 25	\$11 75
35 gallon	.....	12 00	14 50
40 gallon	.....	14 50	17 00
52 gallon	.....	21 00	26 00
66 gallon	.....	30 00	36 00
82 gallon	.....	37 50	50 00
100 gallon	.....	48 00	58 00
120 gallon	.....	57 00	67 00
144 gallon	.....	.....	76 00

SUBSTANTIAL DECLINES ON BRASS AND COPPER

Toronto

Substantial reductions are again recorded in prices on copper and brass goods. Following on the recent declines of approximately 2 cents per lb. on sheets, rods and tubing, these products now take further extensive reductions varying from 3 to 7 cents per lb.

With the recent gains in ingot copper, the strength of this market was expected to be reflected in prices on copper products, but up to the present no change has resulted. Increases, varying from 1 to 2 cents per lb. are however, reported from other centres on copper goods. The local prices are included in the following list, but one dealer stated that there is a possibility of the higher level developing in the near future.

BRASS—

Sheets base, per lb.	.....	\$ 0 22
Rods, base, per lb.	.....	0 20
Tubing, base, per lb.	.....	0 25

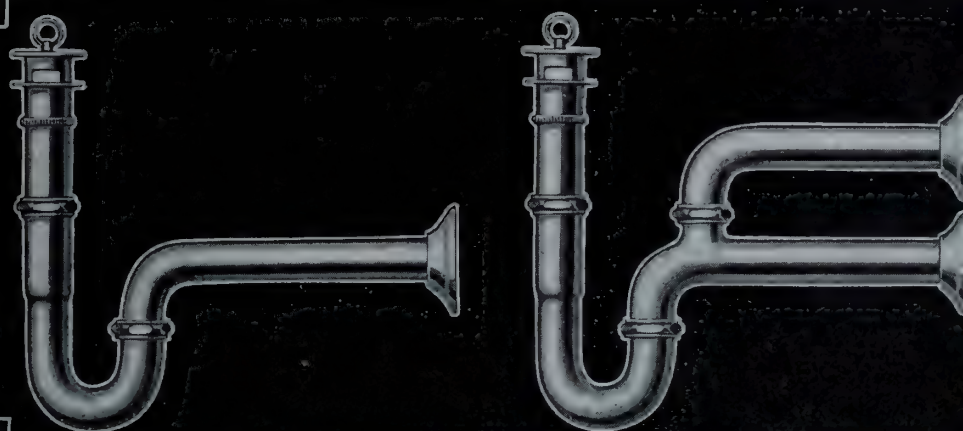
COPPER —

Rods, base, per lb.	.....	0 26
Soft sheets, plain, 1 oz. and heavier, lb.	.....	0 28
Do., plain tinned 16 oz. and heavier, lb.	.....	0 35
heavier, lb.	.....	0 40
Tubing	.....	0 27

K & F HORSE RASPS HAVE REVISED DISCOUNTS

Toronto.

Following the announcement last week of lower prices on the Hellers horse rasps, the K & F make of horse rasps have also revised discounts. The new quotation is list, less 75 per cent.



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Satisfied customers are your best advertisement—as they are ours. Your customers deserve the best that you can give them—in Brass Goods as well as in workmanship.

MUELLER Brass Goods are made with such infinite care and precision that no special fitting is necessary for their installation—thus saving you time that means profit on the job.

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Mueller Metals Co., Port Huron, Mich., Makers of “Red Tip” Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

MANY PRICE CHANGES

ON PIPE FITTINGS

Toronto

Following on the price revision in wrought nipples and couplings recently enumerated in the market reports, quotations on other classes of pipe fittings are also changed. The current price adjustments are chiefly to lower levels, attained through revised discounts. Cast iron fittings; all kinds of plugs; malleable and cast bushings; and unions of all sizes are affected; while prices on the black and galvanized malleable fittings in classes A, B and C, have all registered additional changes.

Current sale of pipe fittings are quoted as fair, with orders continuing of the small variety, but more numerous. Following are the prevailing discount revisions:

PIPE FITTINGS—

Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, 1/4 in. to 2 in.	45
Do., 8 in., 2 1/4 to 4 in.	45
Flanged unions	25
Dart unions, blk., 1/4 to 2 in.	29
Do., 1/2 in., 2 1/4 to 4 in.	40
Do., galvd., add to black	30
Nipples, blk., and galvd. 1/8 to 4 in.	50
close and short	40
Do., 4 1/2 in. and larger	40
Do., long, 1/2 in. to 4 in.	60
Do., 4 1/2 in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4 1/2 in. and larger	10

MALLEABLE FITTINGS—

	Black	Galvanized
Class A	0 55	0 68
Class B	0 23	0 33
Class C	0 15	0 23

IMPROVEMENT NOTED IN LEAD AND ZINC GOODS

Toronto

The market on lead and zinc goods has remained steady during recent weeks, and prices on these various products have held firmly. This condition has been supported by an improvement in the current demand, with the volume of Fall business showing a seasonable activity. The recent lower price levels on the different grades of solder are still being shown, and the following list of quotations, remains generally unchanged:

LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	0 12 1/2
Lead, waste pipe, list, per lb.	0 13 1/2
Do., over 8 in., list, per lb.	0 14 1/2
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends, 10 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09 1/2
Cut sheets, 1/2 c to 3/4 c lb. extra and cut sheets to size, 1 c lb. extra.	
Solder wire, per lb.	0 29
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

REVISED DISCOUNT SHOWN ON JACK CHAIN

Toronto

A new discount has been given covering prices on jack chain. This change is applicable to both the steel and brass chain, and the revised quotation is list less 15 per cent.

NEW LOWER LIST ON BOLTS AND NUTS

Toronto.

A new revised list is now effective on bolts and nuts, showing reduced prices on both products. The decline on bolts averages approximately 10 per cent, this change affecting carriage, machine and miscellaneous bolts; while the similar lowering in quotations on square and hexagon nuts, both blank and tapped, amounts to \$1.00 per 100 lbs.

BOLTS AND NUTS—

—Discount sheet applying to standard lists.	
Carriage bolts, \$1.00 list, 3-8" dia. and smaller, 6 in. and shorter	40
Do., longer lengths	30
Do., 7-16 in. and larger	25
Machine bolts 3-8 in. dia. and smaller	
4 in. and shorter	50
Do., longer lengths	40
Do., 7-16 in. dia. and larger	40
Sleigh shoe bolts, all sizes	25
Coach and lag screws	50
Square head blank bolts	40
Bolt ends	40
Plow bolts, 1, 2, 3 heads	35
Do., others (Net extra 20%)	35
Elevator bolts, large head	25
Do., corrugated heads	55
Fancy head bolts	25
Shaft bolts (\$3 list)	25
Step bolts, large head (\$3 list)	25
Whiffletree bolts	25
Nuts, 2 in. and smaller, square blank, off list	\$0 50
Nuts, 2 in. and smaller, square tapped, off list	Net list
Nuts, 2 in. and smaller, hexagon—blank, off list	Net list
Do., tapped, add to list	0 50

CANADA PLATE PRICES AGAIN LOWERED

Toronto

Another 30 per cent reduction has been announced in the prices on Canada plates this current change bringing the prevailing quotations on dull, 60 sheets, to \$5.65 per box; and on the ordinary, 52 sheets, to \$5.60.

	Per box
PLATES, CANADA—	
Dull, 60 sheets	5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
1X, 20 x 28, 11 2 sheets	20 50
1X, 20 x 28, 56 sheets	12 00
PLATES, CHARCOAL TIN—	
1X, 20 x 28, 5 6 sheets	14 00
1XX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
1C, 14 x 20, 112 sheets	12 00

WIRE NAIL BASE PRICE ADVANCED TO \$4.25

Toronto

As outlined in a previous issue of Sanitary Engineer, the recent reductions in wire nail base prices have failed to to hold for any length of time, and the reaction to higher levels has now set in, an increase of 25 cents being recorded. This advance brings the current quotation to \$4.25, and is parallel with the increases noted on southern primary markets, to which reference was made in a previous report covering this situation. On the strength of Pittsburgh base prices, the evening-up revision was more or less expected; and the recent declines mainly indicated a local situation on Canadian wire products markets.

HIGHER PRICES APPEAR ON GALVANIZED SHEETS

Toronto.

An advance in quotations on galvanized sheets to the extent of 15 cents per cwt., has been made by some of the local

wholesale houses. The new prices given are based on \$6.25 for the 28 gauge sheets, and \$6.65 per 100 lbs. for the 10-3/4 oz. However, the increase is not yet generally applied, as the lower quotation of \$6.10 base on galvanized sheets is still on the market.

Some advance in prices on a more general scale is predicted in reports from southern primary steel markets. Recent developments indicate that the higher level on sheets effective in U. S. circles will be reflected throughout all phases of the trade in the near future. At present there is evident a very strong market in sheets and plates, with more activity and a firmer demand than has been apparent for a number of months. In this connection it is significant that one large Canadian producer has sufficient bookings on hand to keep the shop operating at full capacity for the next sixty days. The whole trend of the present market, is therefore, towards an increase; and, as pointed out, the following quotations have already been revised to a higher level in some quarters:

BLUE ANNEALED—

10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—

18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 10
26 gauge	4 65	5 15
28 gauge	4 75	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—

	Queen's Head.	Fleur-de-lis.
28 gauge	9 50	8 75
26 gauge	9 25	8 50
24 gauge	8 65	8 10
22 gauge	8 30	7 65
18 and 20 gauge	7 60	7 50
Premier and Apollo—		
10 3/4 oz.	6 50	7 00
U. S. 28, base	6 10	6 60
U. S. 26	5 80	6 30
22 and 24	5 65	6 15
18 and 20	5 50	6 00
16	5 35	5 85
12 and 14	5 20	5 70

An extra is now charged on galvanized sheets, 10 3/4 oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is from 20c to 30c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

NEW PRICES GIVEN ON KNIFE HANDLED WRENCHES

Toronto

Lower prices are announced on knife handled wrenches, the revised quotations being as follows:

KNIFE HANDLED WRENCHES—

	per doz. net
Size 8 inch	\$15 60
Size 10 inch	18 60
Size 12 inch	24 00
Size 15 inch	32 40
Size 18 inch	40 80
Size 21 inch	49 80

CONDITION OF STOCKS GOVERNS TUBE PRICES

Toronto.

There has been no apparent change in the current situation on boiler tubes. The demand has failed to exhibit signs of any strong activity, while prices still re-

(Continued on page 36)



MADE
IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

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stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

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of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

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Montreal and Toronto—From Head Office, Guelph Ont.

TORONTO MARKETS

(Continued from page 34)

flect the condition of present stocks, and are made according to the state of liquidation. No marked improvement in this situation is anticipated while the buying movement is at its present depressingly low state, when compared with normal seasonable demands. It is considered speculative in some quarters whether the betterment of this class of tubular goods will develop during the coming winter or early spring months. Following are the current average quotations in tubes:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1 1/4 inch	27 25	.....
1 1/2 inch	26 25	.....
1 3/4 inch	29 75	25 00
2 inch	28 00	22 00
2 1/4 inch	32 00	25 00
2 1/2 inch	40 00	27 00
3 inch	44 00	35 00
3 1/2 inch	60 00	40 00
4 inch	75 00	50 25

LOWER PRICES HOLD ON

COMPRESSION WORK

Toronto.

In contrast with the many recent revisions that have been recorded, prices on valves and compression work generally remain unchanged. Some new business has been reported at the lower quotations, but any general improvement is said to be very slight, as trade is only described as fair for this season of the year. Following are the prevailing discounts.

VALVES—

	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoals, stand'd	46
Roundaway stop and waste cocks, std.	40
Brass steam cocks, standard	10
Globe, angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves ..	20
J. M. T. valves	20
J. M. T. C.	25
J. M. T. gate valves	25
Gate or straightway	16-10
Jenkins globe	10-10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves	20
Emco, check valves	20
Webber gate valves	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
Quick opening No. 3633	43

FAIR INTEREST IN CORRUGATED SHEET MARKET

Toronto.

Quotations on corrugated sheets are holding at the lower levels recently announced; and with an average volume of business recorded. Further price revisions on the flat galvanized sheets on the primary steel markets, have created a renewed interest in corrugated, owing to the proportionate range on these products. With the higher prices on flat galvanized sheets now developing, a firmer tone is reflected in current quotations on corrugated. The prevailing levels follow:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 2 1/2 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50
Less 7 1/2%	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

FIRMER UNDERTONE IN PIPE

Toronto.

The stronger tone which has developed throughout the steel industry, coupled with the price gains on certain products which have recently been recorded, tend to reflect a corresponding firmness in the market on conductor pipe and eaves-trough. While local quotations remain at the recent lower revisions, and no changes have been announced either on outside or domestic markets, the opinion has been expressed that prices have now reached the bottom of the downward movement.

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 60-10 per cent.	

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00
Less 60-10 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	

IRON PRICES ARE FIRMER WITH BETTER OUTLOOK

Toronto.

Reports emanating from the southern primary steel markets indicate the feeling is fast spreading among the mills that prices on bars, shapes and plates, have now been fully liquidated. As a result, steel producers are said to be contemplating an advance in quotations on these products in the near future.

On the other hand, leaders in the steel trade speak more confidently of larger mill operations and increased volume of business, that was not apparent a month or six weeks ago. The trend of prices on the primary steel markets generally has been toward a higher and firmer level.

Local quotations on bar iron and steel, however, generally remain unchanged, as follows:

IRON AND STEEL

Mild steel bars, base	3 25	3 50
Mild steel bands, 3-16 in. base	3 75	4 00
Bar iron, base	3 25	3 50
Angle iron, base	3 35	3 60
Horseshoe iron	4 10	
Tire steel	4 75	5 90
Spring steel	9 50	11 50
Crucible cast steel	30 00	35 00
Mining drill steel	18 50	
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	4 10	4 50
Norway iron	15 00	
Toe caulk iron	5 40	6 40
Hoop steel	4 50	4 75

IMPROVEMENT IN SOME INGOT MARKETS

Toronto.

An improved tone is now generally apparent throughout the ingot metal markets, with copper, spelter and tin, attracting chief interest in the order named. The increase in inquiry is the principal feature which has served to

partially restore confidence in these metals, and in view of the steady consumer interest, prices on British and American primary markets, have reflected this betterment in conditions by higher quotations. Whether the gains will materialize in permanent improvement, however, is primarily dependent upon the strength of the buying movement being sustained.

COTTON WASTE QUOTATIONS

HOLD UNCHANGED

Toronto.

Dealers report that prices on cotton wastes remain unchanged, at present, but a tendency towards an advance in quotations is manifest among certain dealers. Based on the prevailing high price of raw cotton, and the corresponding higher levels on manufactured cotton goods generally, some increase on cotton wastes has even been predicted in one quarter; but this has not yet materialized; and the average local prices hold steady, at the levels which have prevailed since the last general revision in June. Current quotations follow:

WASTE—	per lb.
Cream, polishing	0 19% 0 20
White, cotton.	
XXX	0 18%
XX	0 16%
X	0 15%
XC	0 14%
XXX extra	0 17
XX grad.	0 16
XLOR	0 15
X empire	0 14
X press.	0 13
Colored, cotton.	
Fancy	0 14
Lion	0 12%
Standard	0 11
Popular	0 10
Keen	0 09
No. 1.	0 13%
No. 7.	0 12%
No. 1A.	0 11%
No. 17.	0 10%

Above lines subject to trade discount for

BETTER OUTLOOK IN SCRAP MATERIAL MARKETS

Toronto.

The outlook in scrap materials is beginning to be a little more encouraging from the dealer's viewpoint. Iron and steel scrap consumers are inquiring more freely but demand has not yet recovered to any extent. Local dealers are hopeful of firmer prices in the near future, as quotations on waste materials in the American markets have recently been advancing. Local quotations, at present, remain unchanged. Following are the averages of dealers' nominal buying prices for fairly large quantities:

WASTE MATERIALS—

No. 2 busheling	11 00
Heavy melting steel, gross ton	9 50 10 00
R. Rd. wrought iron, No. 1, gr. ton	10 25 11 25
Scrap pipe, gr. ton	00 7 00
Stove plate, net ton	11 00 12 00
No. 1 machinery cast, net ton	15 00 16 00
Heavy lead	3 75 4 00
Tea lead	2 00 2 50
Red brass	5 00 6 00
Yellow brass	3 00 3 50
Light brass	9 25 10 00
Heavy copper	3 00 3 50
Scrap zinc	2 00 2 50
Old rubbers, boots and shoes	1 25 1 75
Lumberman's rubber boots	0 50 1 00
Auto tires	0 75 1 25
Solid tires	

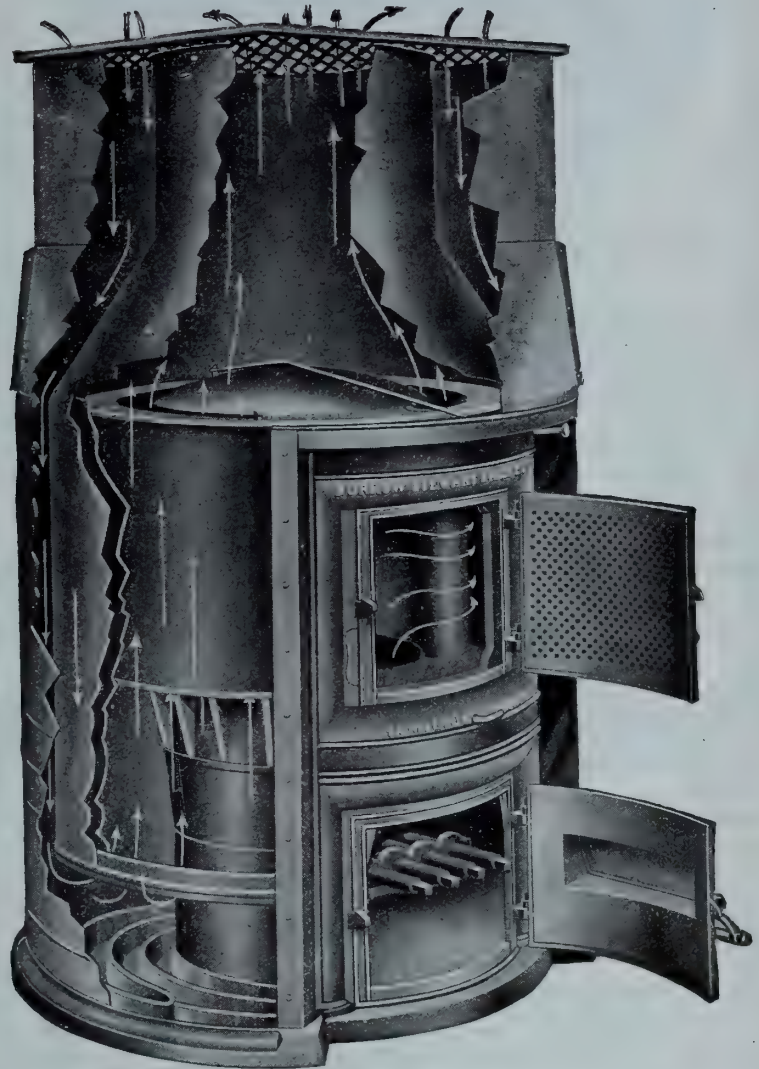
(Winnipeg Markets on page 38)

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TORONTO

WINNIPEG

MONTREAL

WINNIPEG MARKETS

WINNIPEG, October 14.—One of the most important price developments featuring the markets on plumbing goods is the change in wrought iron and steel piping. A new list has now been issued, thus bringing quotations to a lower level. Reductions are also evident in prices on corrugated sheets; while a decline is given on soldering coppers.

Other primary markets in steam-fitting lines have practically remained stationary, few price revisions being recorded. A firmer tone is evident in cotton wastes, this being a reflection of the strength of raw cotton, and the consequent higher prices on manufactured cotton goods. Current business in many products is said to be just fair. Some revision in the list prices on range boilers is looked for with a settlement in this market reported as imminent.

FIRM TONE IN COTTON

WASTE MARKETS

Winnipeg

While prices of cotton wastes are at present unchanged, and locally are holding at the levels which became effective in June, some price advances have been made in Southern markets, and a firm tone exists in cotton generally. The higher price of the raw material, coupled with the recent advances in prices on manufactured cotton goods, has developed the strong undercurrent in wastes. However, dealers state that if the cotton wastes were locally in steady or increased demand, prices would undoubtedly have advanced. There is, however, no wish on the part of dealers to retard what business is now evident in wastes by higher quotations, but based on the present cost of raw cotton, advanced prices on wastes will likely be in order as soon as present stocks are consumed.

WASTE—

Cream, polishing	\$0 24½
White	
XXX Extra	0 21
XX Grand	0 20
XLGR	0 19
X Empire	0 17½
X Press	0 16
Colored	
Fancy	0 17½
Lion	0 16
Standard	0 14½
Popular J	0 13
Keen	0 11½

Above lines subject to trade discount for quantity.

NO MARKED CHANGE

IN LEAD PRODUCTS

Winnipeg

Quotations on the different lines of lead products continue unchanged, with the tone of the market practically the same as last week. Following are the present prices:

LEAD PRODUCTS—

Lead pipe, per 100 lbs.	\$12 06
Lead waste, per 100 lbs.	12 96
Lead traps and bends, 5% off list.	
Lead sheets, full rolls, per lb.	0 10½
Less quantities	0 11
Solder, ½ and ½, case lots, per lb.	0 26
Less quantities	0 27
Zinc sheets, per lb.	0 13

REVISED DISCOUNTS GIVEN

ON TRIMO WRENCHES

Winnipeg.

The discount on Trimo Pipe Wrenches is now 40 per cent. off the list, and the parts for same are now quoted at 35 per cent. off the list.

ANOTHER NEW LIST ON

WROUGHT PIPING

Winnipeg.

Through the issuing of a new list on piping, wrought iron and steel pipe are again reduced in price. The amount of reduction varies on the different sizes. This adjustment adds another revision. to the many changes made on wrought pipe since the first of the year. Following is the list of new prices.

BLACK PIPE

F.O.B.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
		[Add to Winnipeg price.]			
1/8	\$ 6.25	\$ 0.28	\$ 0.20	\$ 0.17	\$ 0.11
1/4	4.96	0.47	0.34	0.30	0.19
3/8	5.10	0.60	0.45	0.40	0.26
1/2	6.56	0.94	0.67	0.59	0.38
3/4	7.90	1.25	0.90	0.79	0.51
1	11.27	1.85	1.34	1.17	0.75
1 1/4	15.25	2.51	1.80	1.57	1.00
1 1/2	18.25	3.01	2.15	1.88	1.21
2	24.55	4.04	2.88	2.52	1.62
2 1/2	38.80	6.40	4.60	4.02	2.68
3	50.80	8.38	6.03	5.28	3.39
3 1/2	65.50	10.12	7.20	6.30	4.05
4	77.60	11.97	8.53	7.46	4.80
4 1/2	88.85	13.91	10.04	8.75	5.62
5	103.60	16.30	11.60	10.15	6.52
6	134.40	21.10	15.00	13.14	8.44
7	197.25	26.14	18.62	16.28	10.48
8L	207.25	27.50	20.00	17.50	11.25
9	290.40	37.60	26.96	23.50	15.16
10L	269.60	35.20	25.60	22.40	14.40

GALVANIZED PIPE.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
1/8	\$ 8.50	\$ 0.28	\$ 0.20	\$ 0.17	\$ 0.11
1/4	7.48	0.47	0.34	0.30	0.19
3/8	7.63	0.62	0.45	0.40	0.26
1/2	8.50	0.94	0.67	0.59	0.38
3/4	10.10	1.25	0.90	0.79	0.51
1	14.53	1.85	1.34	1.17	0.75
1 1/4	19.67	2.51	1.80	1.57	1.00
1 1/2	23.50	3.01	2.15	1.88	1.21
2	31.65	4.04	2.88	2.52	1.62
2 1/2	50.03	6.40	4.60	4.02	2.68
3	65.45	8.38	6.03	5.28	3.39
3 1/2	83.20	10.12	7.20	6.30	4.05
4	98.50	11.97	8.53	7.46	4.80
4 1/2	113.20	13.91	10.04	8.75	5.62
5	132.00	16.30	11.60	10.15	6.52
6	171.25	21.10	15.00	13.14	8.44
7	...	21.10	15.00	13.14	8.44
8	...	27.50	20.00	17.50	11.22

CORRUGATED SHEETS ARE

LOWERED IN PRICE

Winnipeg

Prices on corrugated iron have been made lower this week. Following are the latest quotations.

CORRUGATED SHEETS—

Galvanized, Medium.	
28 gauge, per 100 lbs.	\$7 20
26 gauge, per 100 lbs.	7 83
Painted, Medium.	
28 gauge, per 100 lbs.	5 85
26 gauge, per 100 lbs.	6 75

HOPE FOR SETTLEMENT

IN BOILER PRICES

Winnipeg

For some time past the resale prices on boilers have shown a material variation among the different jobbing houses, and it is the opinion of the manufacturers that if a new price basis was established, prices would again become uniform. However, the market has improved in recent weeks, and whether new prices are forthcoming or not, it is expected an agreement will soon be reached among the dealers. There is no indication of any price changes at the present time, and the current nominal prices are as follows:

RANGE BOILERS— (Galv.)

20 gallon, each	\$10 00
30 gallon, each	10 00
35 gallon, each	13 25
40 gallon, each	16 25
52 gallon, each	23 45
66 gallon, each	33 15
82 gallon, each	40 60
100 gallon, each	62 50
120 gallon, each	75 00

LOWER QUOTATIONS ON

SOLDERING COPPERS

Winnipeg

Prices on soldering coppers have again been reduced and following are the newest quotations.

SOLDERING COPPERS—

Price per lb.	
1 lb., 49½c; 1½ lb., 45½c; 2 lb., 42c; 2½ lb., 41c; 3 lb., 39c; 3½ lb., 39c; 4 lb. and over 38c.	

PRICES ON CANDLE WICK

PACKING ADVANCE

Winnipeg.

Candle wick packing is quoted at 52 cents per pound which is an approximate advance of 5 per cent.

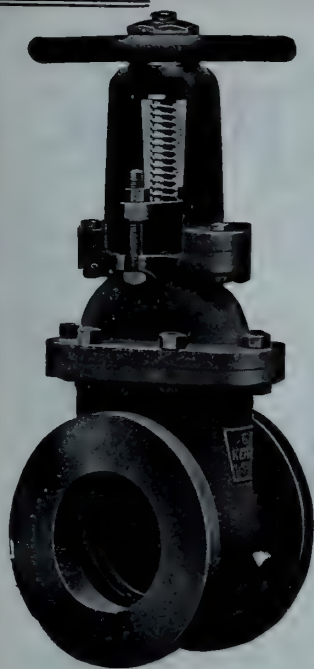
HEATING THE NEW PARLIAMENT BUILDINGS

(Continued from page 19)

instance, the building which was burnt down had its own heating plant, which consumed 25 tons a day. The east and west blocks burnt about that between them. The present plant has supplied these buildings and six others with ample heat on a consumption of 45 tons per day. This is a remarkable result, and amply justifies the undertaking. In all of those miles of piping we did not come across a leak, and we walked from end to end of the tunnel. A patrol is kept up of one man every shift making a complete tour of the installation and reporting on any defect he comes across. The firemen and watch engineers work in three shifts of eight hours each, and there is an engineer in charge on duty all day and one all night. There is ample opportunity in the summer when Parliament is not in session to carry out all the repairs that may be necessary.

Steam is also supplied to the parliamentary kitchens for cooking purposes, and there is of course, an enormous demand for hot water for domestic purposes in such a huge building. The central plant, takes care of it all and to everybody's satisfaction.

It is cause of satisfaction to think that this big job was designed by a Canadian consulting engineer and carried out by Canadian contractors.



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They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.
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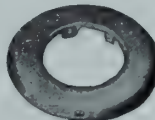
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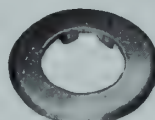
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Heaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, BLACK AND GALVANIZED

Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.

PIPE CLEANSER

Chamberlain Desolve Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS

Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL AND FITTINGS

Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Ltd., Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
Toronto Hardware Mfg. Co., Toronto.
Warden King Ltd., Montreal

PIPE THREADING TOOLS AND MACHINERY

Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES

J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS

J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS

Empire Mfg. Co., London and Toronto.

PORCELAIN WARE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Porcelain Products Ltd., Toronto.

PUMPS

W. H. Cunningham & Hill, Ltd., Toronto.
R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC

R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS

Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS

Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden-King Ltd., Montreal.

RADIATOR NIPPLES

Fittings Ltd., Oshawa.

RADIATOR TRAPS (STEAM)

C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS

Fittings Ltd., Oshawa.

RANGE BOILERS

Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES

C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
The Simplex Mfg. Co., Chicago, Ill.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.

SEPTIC TANK VALVES AND SYPHONS

Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

LINK BRACKETS

Fittings Ltd., Oshawa.

SOCKETS, WIRE ROPE

J. H. Williams & Co., Montreal, Que.

SOLDER

Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES

C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES

Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL

Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES

James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK

J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL

Atlas Tank Works, Toronto.
The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS (RUBBER)

W. H. Cunningham & Hill, Ltd., Toronto.

TESTING PLUGS

James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS

J. H. Williams & Co., Brooklyn, N.Y.

TOOLS

Wolverine Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES

W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS

C. A. Dunham Co., Ltd., Toronto.

VICES, CHAIN, CLAMP, MOUNT

J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS

Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING

C. A. Dunham Co., Ltd., Toronto.

VALVES

Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS

The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Westco Pumps Limited, Toronto.

WASHERS.

W. H. Cunningham & Hill, Ltd., Toronto.

WASHING MACHINES

Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS**SOCKET AND CHAIN PIPE**

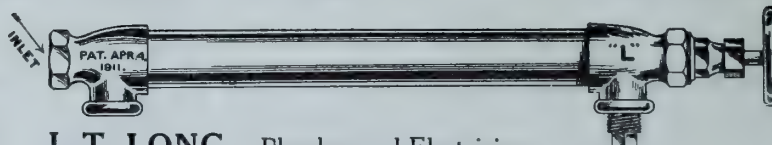
J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES

Fittings Ltd., Oshawa.

THE LONG Patent Steam Trap

There are many convincing features to point out to your prospective clients: properly set to drain, it cannot freeze; no valves are required other than those which admit steam to the apparatus to which the Long Steam Trap is attached.



J. T. LONG, Plumber and Electrician
127 4th. Ave., Maisonneuve, Montreal

This effective steam trap is regulated to work against 1 to 100 pounds pressure. It will drain from 900 to 1,500 feet of one-inch pipe. This proposition will pay you—write now, while you have it in mind, for particulars.

Money-Saving Information

"The most useful information contained in any paper I get"—so a Western banker writes in to-day's mail, renewing his subscription for **FINANCIAL POST**.

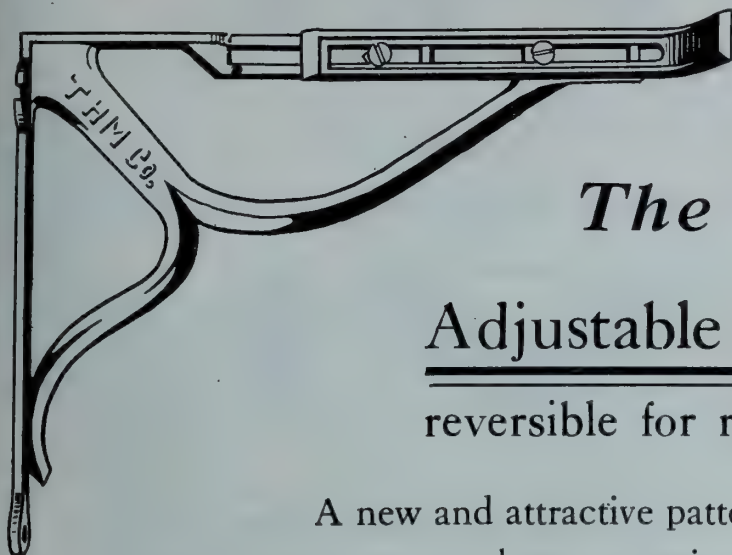
"Very often," his letter goes on to say, "I am called on to suggest investments for small amounts, sometimes as low as a few hundreds, and I find your Investors' Inquiry Service a reliable partner to consult. If every investor knew there was such service at his call it would surely lessen the losses of many of these people."

The Investors' Inquiry Service fills just that need. Unless you are perfectly sure of your investments write us before you buy.

It costs **FINANCIAL POST** subscribers nothing to be sure before placing hard-earned savings in stocks that may never have a chance of paying dividends. Trained service men will give you the benefit of keen analysis based on the facts behind the securities you are considering. This is one of many features enjoyed by our readers.

THE FINANCIAL POST 143 University Avenue, TORONTO, CANADA

Send me for one year (52 issues) The Financial Post. I attached \$5.00—commence at once.



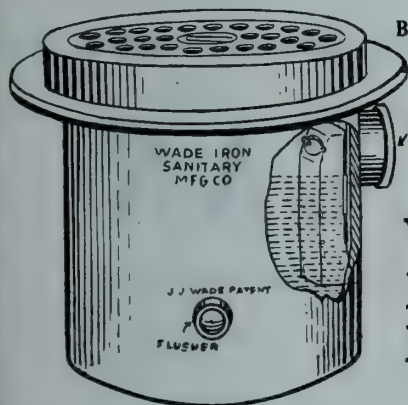
The "T. H. M. Co."

Adjustable Sink Bracket

reversible for right or left hand

A new and attractive pattern. Plenty strong enough,
but economically light in weight

Toronto Hardware Mfg. Co., Limited



B Fig. 124 - Floor Drain

For Dairies and
Concrete Floors

**Wade
Floor
Drain**

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

Write for Catalog "B"

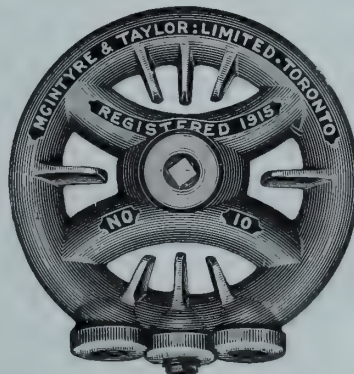
Wade Iron Sanitary Mfg. Co.

551-553 Fulton St.

CHICAGO, ILL

Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor Drains and All
Descriptions of Iron or Gravel and Grease Basins.

M. & T. COILS EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

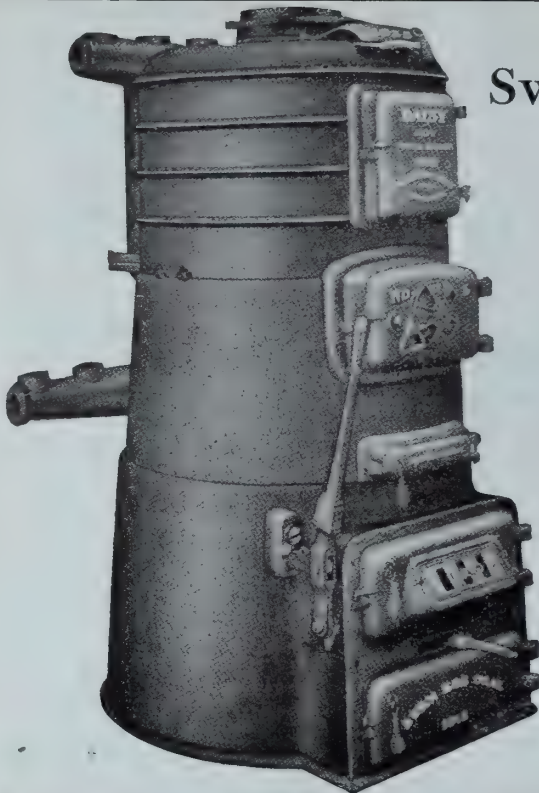
Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited
TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street



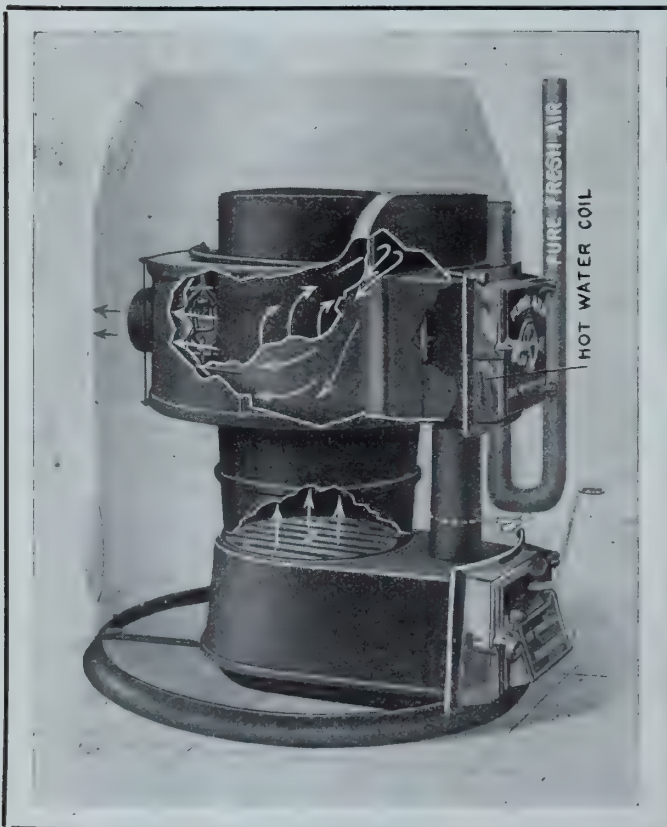
Swim With The Tide — Install “DAISY” Hot Water Boilers

People all over Canada like the “Daisy” Hot Water Boiler. It is “in right” and boosted by every one of its owners—over 60,000 of them. It has made good, proved itself in use, and is going strong.

Common sense shows that it is easier to sell and install Daisy Hot Water Boilers than to consume time in the endeavor to change the prospect's mind to something else.

Swim with the tide of business—it's easier going!

WARDEN KING, Limited, Montreal
BRANCH OFFICE: 136 Simcoe St., TORONTO



Vulcan Pure Air Furnaces

VULCAN

The Really Modern Furnace

Heating Engineers are fully aware to-day of the menace of foul air and gas as well as the added difficulty of heating such atmospheres. Fresh air is easier to heat. The constant supply of pure fresh air makes it the most healthful form of heating, as well as most efficient.

The grate is simple, reliable and so designed that no coal can drop through. The elimination of ash-sifting is very convincing to prospective customers.

Vulcan Pure Air Furnaces are satisfactory in service, economy of fuel, comfort in the home and ease of operation. We can prove this; Write and ask us to.

The VULCAN CO., Limited

Founders and Machinists

London, Canada



Good Times Just Ahead

PROSPERITY is within our reach in Canada.

All we need to have and to hold it is a sane, sure grasp on its simple elements.

They are Industry, Integrity, and Faith.

These are the cardinal virtues of human relations. They are the underpinnings of healthy, natural business life and the foundation of a wholesome social system.

They are the fountainhead from which Progress springs. A well-known business economist has called them the "Fundamentals of Prosperity."

Your purchases are an expression of Faith. They are evidence of your Industry. Make them confidently from business institutions of Integrity.

Buying is the backbone of prosperity. An active market means more employment, steadier earnings; benefits are passed around.

Wise spending gives stability to earning and for that reason is far-sighted thrift and sound economy.

The call of to-day is for cheerful thinking, willing working and constructive action by you—everybody—NOW.

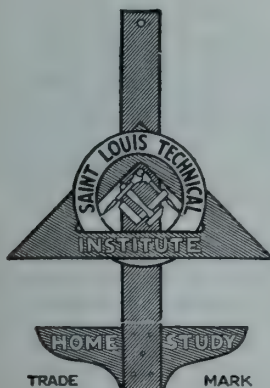
To-morrow's change for the better will come about through the combined efforts of each and every one of us.

By sheer force of numbers and co-operation, by the high power of heart and mind, we can put Business on a firm, stable basis.

We can do this because all of the material factors making for better business are right.

Let us link our faith with industry, our vision with courage, and forge ahead.

Let's make an uncommon effort toward a common end—Good Times.



ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.

Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.

We teach you in your own home or office, Clear, Personal, Direct. An Hour a day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
COURSES IN SHEET METAL DESIGN AND PATTERN DRAFTING
COURSES IN HEATING AND VENTILATING ENGINEERING

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave.

O. W. Kothe, Prin.

St. Louis, Mo.

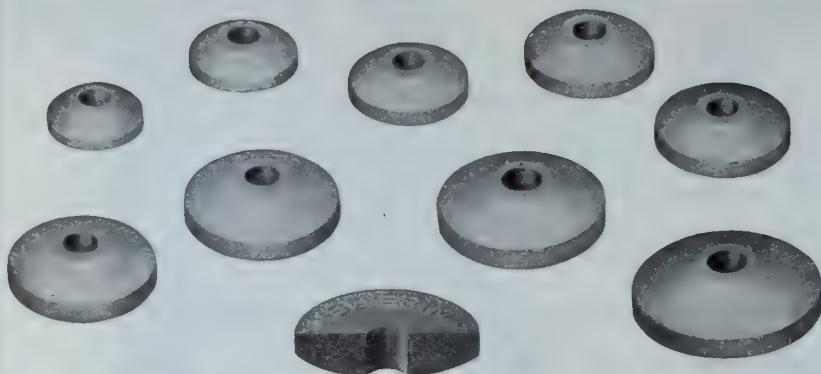


FIG. 4402. TAPERED BIBB WASHERS

Washers That Satisfy

There may be 57 varieties of Pickles, but there are more than 157 varieties of Washers—good, bad, and indifferent.

A Washer may only cost a cent or two, but it has a big job to perform.

Avoid troubles. Insist on Wolverine. Made from our own formulas, the result of years of experience. Our name on each Washer is your guarantee of satisfaction.

Wolverine

— Limited —

76 Nelson St.

Toronto

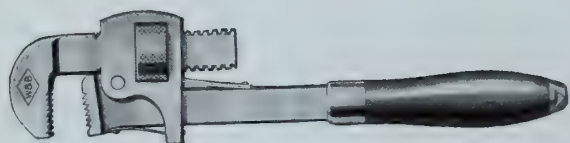
Allpriser— Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave.

Toronto, Ont.



Williams' Stillson Wrenches

Are sturdy and dependable—well balanced—positive in grip—powerful in action.

The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

Wood and Steel Handle Patterns—eight sizes, 6 to 48 inches.

Ask for Booklet

J. H. Williams & Co.
LIMITED

"The Wrench People"

Formerly Canadian Branch of
The Whitman & Barnes Mfg. Co.

77 Thorold Road - St. Catharines, Ont.

WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

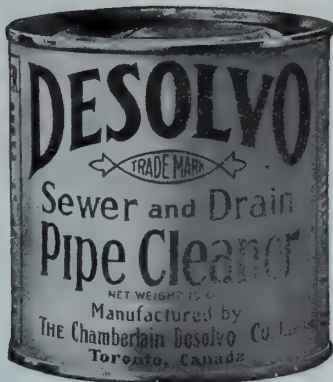
Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

The Sanitary Engineer's circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

INDEX TO ADVERTISERS

Allison, K. B.	46
Amherst Foundry Co.	Inside front cover
Anthes Foundry, Limited	6-7
Atlas Tank Works	48
Beaton and Cadwell	47
Burrow, Stewart & Milne Co., Ltd.	37
Canada Metal Co.	11
Canadian Tube & Steel Products	48
Chamberlain Desolvo Co.	47
Crane, Limited	3
Cunningham, W. H. & Co., Ltd.	41
Dominion Sheet Metal Corp., Ltd.	1
C. A. Dunham Company, Ltd.	9
Empire Brass Mfg. Co.	Outside front cover
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	48
Hause Mfg. Co., Chas. F.	48
Hourd & Co.	48
Hoyt Metal Co.	45
Hall Zryd Foundry Company, Ltd.	Inside back cover
International Malleable Iron Co.	35
Jardine & Co., A. B.	39
Katie Foundry	48
Kerr Eng. Co., Ltd.	39
Long & Co., J. T.	42
Lord and Burnham Co., Ltd.	5
Marks & Co.	48
McIntyre & Taylor, Ltd.	43
Morrison Brass Mfg. Co., Ltd., Jas.	41
Mueller Mfg. Co., Limited, H.	33
Port Hope Sanitary Mfg. Co., Ltd.	24-25
Presto Mfg. Company	4
St. Louis Technical Institute	45
Spencer Heater Co.	2
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	48
Toronto Hardware Mfg. Co.	43
Vulcan Co., Ltd.	44
Wade Iron & Sanitary Mfg. Co.	43
Warden King, Limited	44
Williams & Co., J. H.	46
Wolverine, Ltd.	46



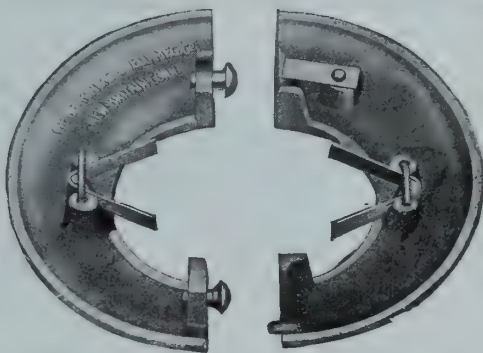
Saves
Tearing
Up the
House
and
Lawns

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flower beds until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

THE CHAMBERLAIN DESOLVO CO., LTD.
109 Church St., Toronto

Eastern Canada Representatives: Richardson and Bureau, 55 St. Francis Xavier St., Montreal; Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ontario; Western Canada Representatives: N.D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.



High Quality at the Right Price
Split Ceiling Frame

The No. 10—A narrow Flange Plate—is a steel plate Flanges $\frac{3}{4}$ " wide. Highly finished, especially designed for twin connection "narrow."

The split ceiling plate is coming more and more into use than ever and always gives a nice finish, because it can be attached to mains and risers at the very last and is not exposed during completion of a building on the floors.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases. Write for catalog showing our complete line of specialties.

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

Eastern Agents: J. R. Devereaux & Co. New Birks Bldg. Montreal
Western Agents: A. E. Hinds & Co. Chamber of Commerce Winnipeg.

WROUGHT PIPE

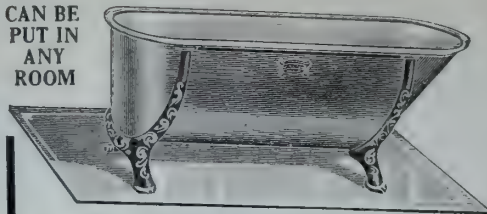


Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ½-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
 Operating Canadian Tube and Iron Co., Limited
 Works at Lachine Canal, Montreal

CAN BE
PUT IN
ANY
ROOM



**PROFITS
IN
COUNTRY
TRADE**

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

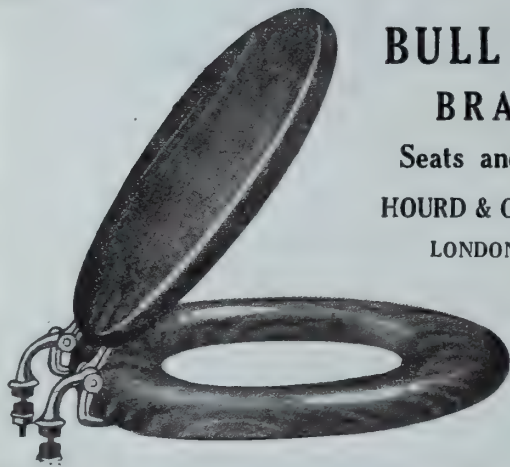
T. TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
 Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal,
 Quebec and Eastern Representative.



BULL DOG BRAND

Seats and Tanks

HOUD & CO., Limited
 LONDON, CAN.

Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

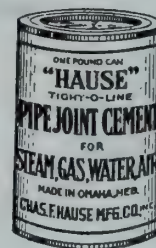
Cor. John and Gore Sts.
 Hamilton Ontario

Superior
Plain



Closet
Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18 in. lengths, plain or tapped on both sides. Ask your jobber for the K. T. Closet Bend, Plain or Tapped.



Chas. F. Hause Mfg. Co., Inc.
 Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
 ALLOWS NO LEAKS

Makes pipe work easy Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.
 Made in Omaha, Neb., U.S.A.

Canadian Distributors:

Empire Manufacturing Co., Ltd., London and Toronto
The London Engine Supplies Co., London

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
 Boilers (Hot Water)
 Storage Tanks
 Hot Water Tanks

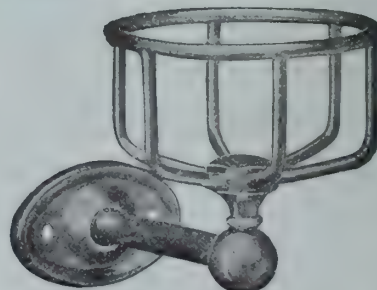
All Kinds of
 Steel Plate Work
 Smoke Stacks
 etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
 105 Ritchie Ave.
 TORONTO

THE GENDRON MFG. CO. Ltd., TORONTO

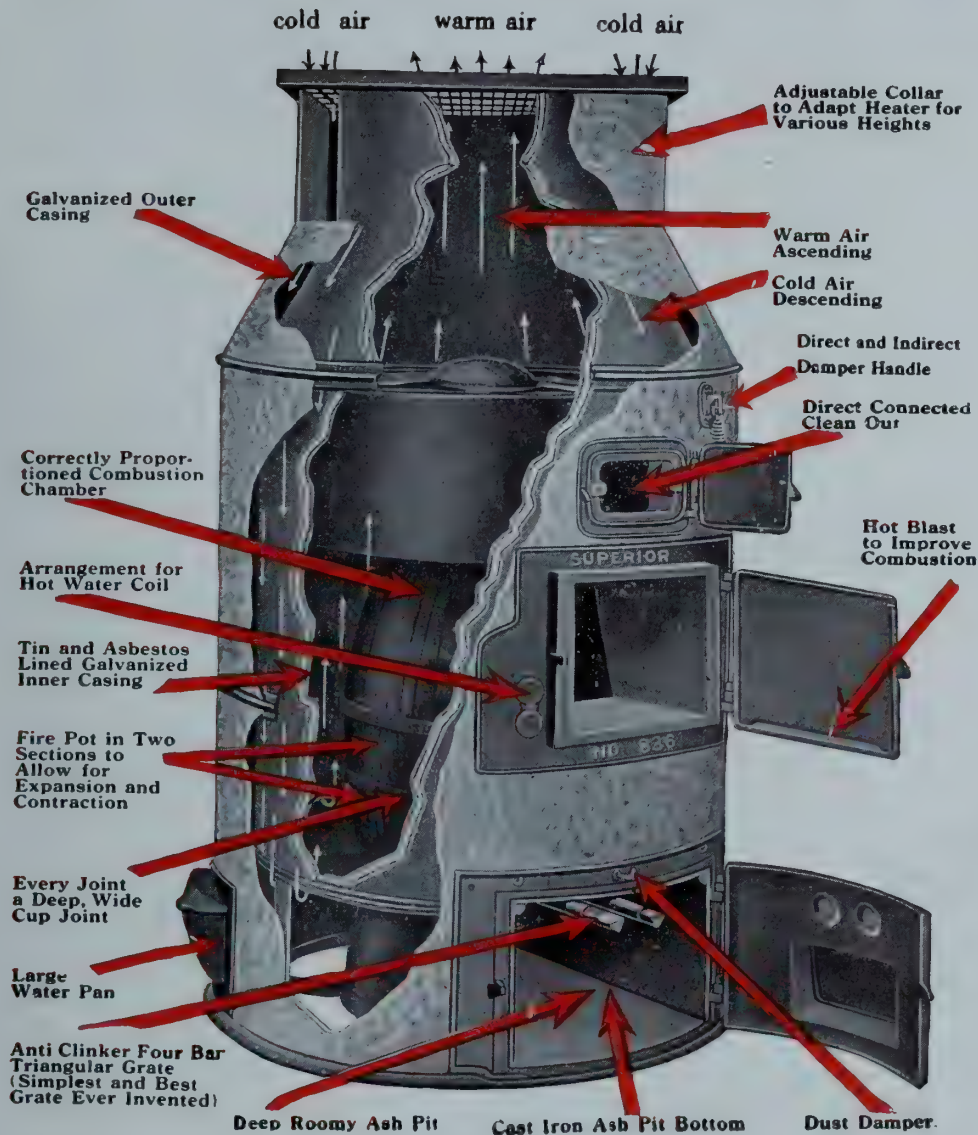


Makers of

Towel Bars
 Soap Dishes
 Paper Holders
 Glass Shelves
 Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

THE PILOT SUPERIOR PIPELESS FURNACE



This remarkably effective furnace supplies you with an unusual number of very convincing features and advantages to point out to your prospects. The galvanized outer casing; correctly proportioned combustion chamber; convenient arrangement for hot water coils, the tin and asbestos lined galvanized

inner casing; fire pot in two sections to allow for expansion and contraction; every joint a deep wide cup joint; large watering pan; anti-clinker four-bar triangular grate—the simplest and best grate ever invented; the deep roomy ash pit; the hot blast to improve combustion and many other useful features convincing to the prospective purchaser.

Hall Zryd Foundry Co., Limited

Western Branch: Post Office Box 687, Winnipeg, Man.

Manufacturers of Pilot Stoves, Ranges and Furnaces
HESPELER, ONT.

PERFECTO

OIL-REGULATED

FLUSH VALVES

Oil-Regulation—The Secret
of Success in Flush Valves

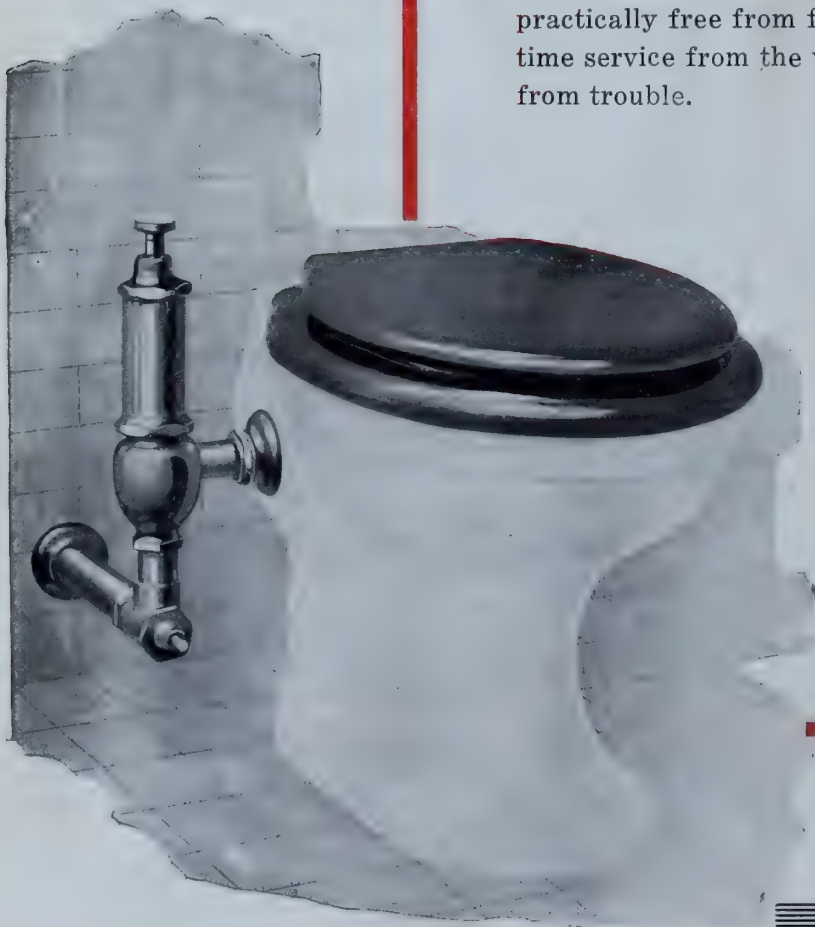


THE long-wearing, smooth-working features of the **PERFECTO** Oil-Regulated Flush Valve are due directly to the protection given the working parts by the oil, and to the fact that the action of the valve is controlled by oil and not by water. This means that sand, dirt and water impurities cannot obstruct the by-pass, or in any way lower the efficiency of the valve. The **PERFECTO** Flush Valve can be easily and quickly regulated, and, once regulated, it does not vary. The vital working parts, being enclosed in a sealed chamber, filled with oil, are kept practically free from friction. This insures a lifetime service from the valve, and absolute freedom from trouble.

Complete satisfaction depends upon the choice of **PERFECTO** Oil-Regulated Flush Valves. Write now for illustrated catalog.

GALT BRASS
COMPANY, LIMITED

Galt, Canada



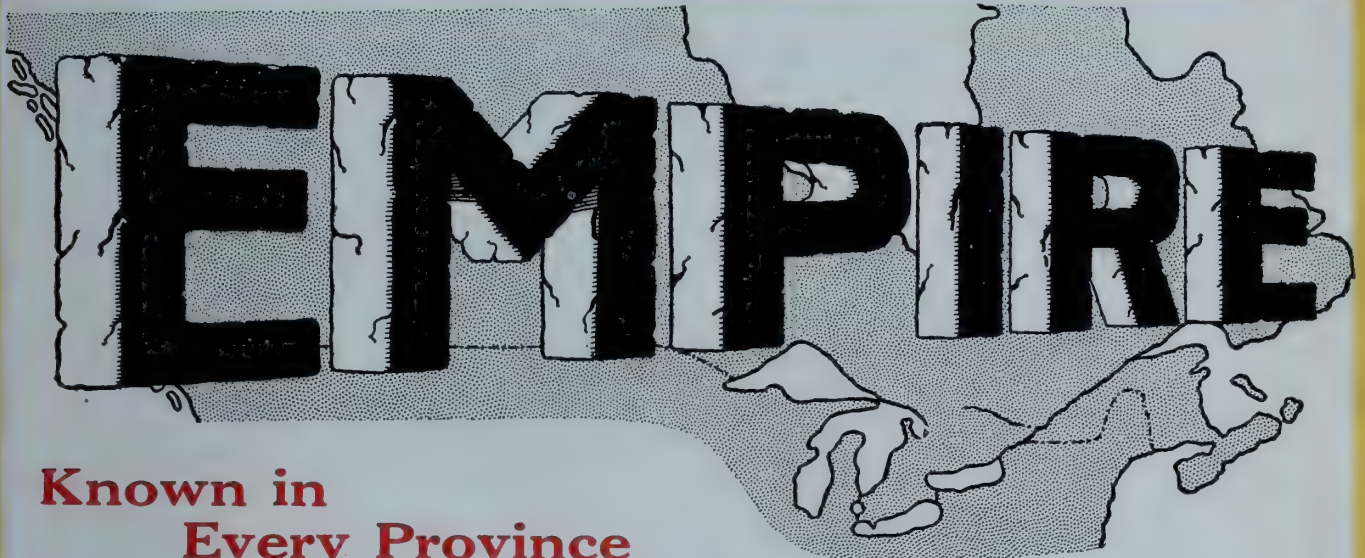
Sanitary Engineer

Plumber and Steamfitter of Canada

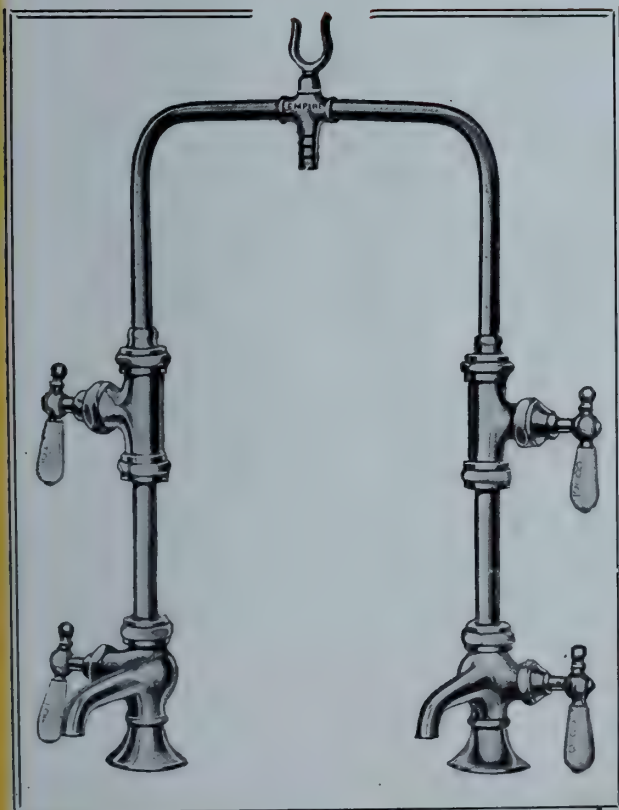
Vol. XV.

PUBLICATION OFFICE, TORONTO, NOVEMBER 1, 1921

No. 21



**Known in
Every Province**



The A-470 Quick-Pression Basin and Shampoo Cock is only one of the many Empire products that have become familiar from coast to coast.

This Empire fixture is a valued asset in the barber shop. Made to fit any size lavatory. Hot or cold water can be run from the shampoo outlet, or the basin can be used independently of the shampoo attachment as desired.

All the cocks are on the quick-pression principle insuring absolute shut-off.

Every Empire product is rigidly tested before being shipped from the factory, and is backed by the Empire guarantee.

Write today for our catalogue.

*"If it's an Empire product you
know it's right."*

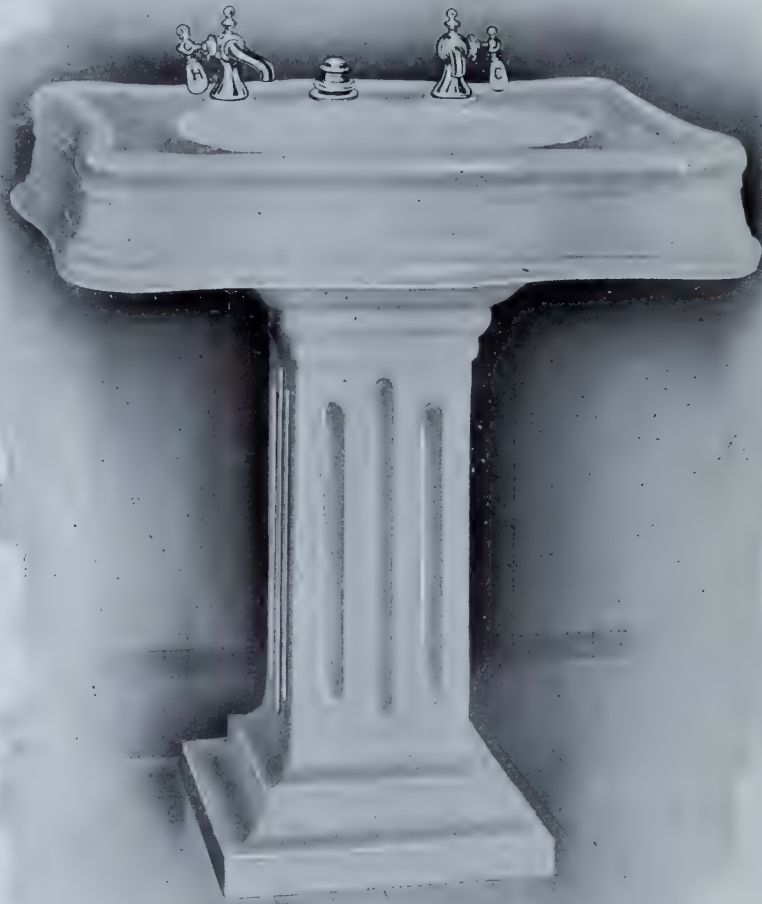
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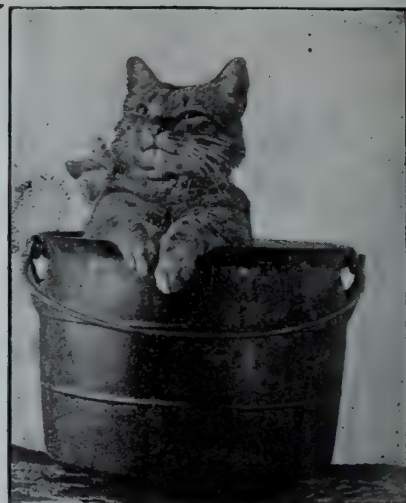
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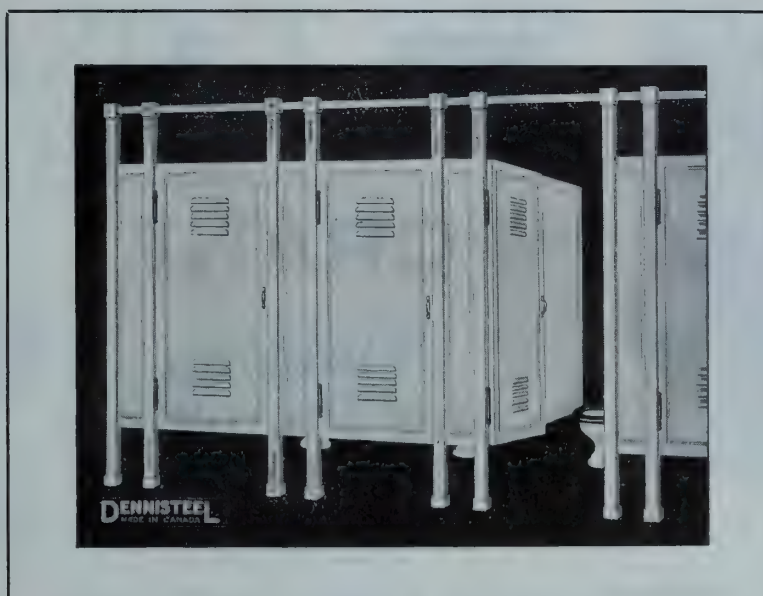
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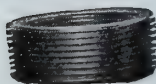
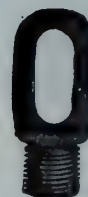
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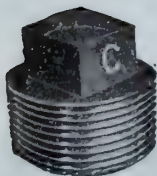
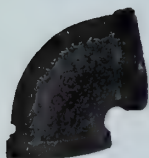
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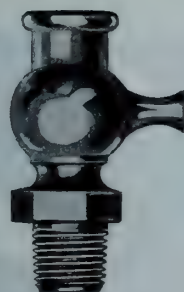


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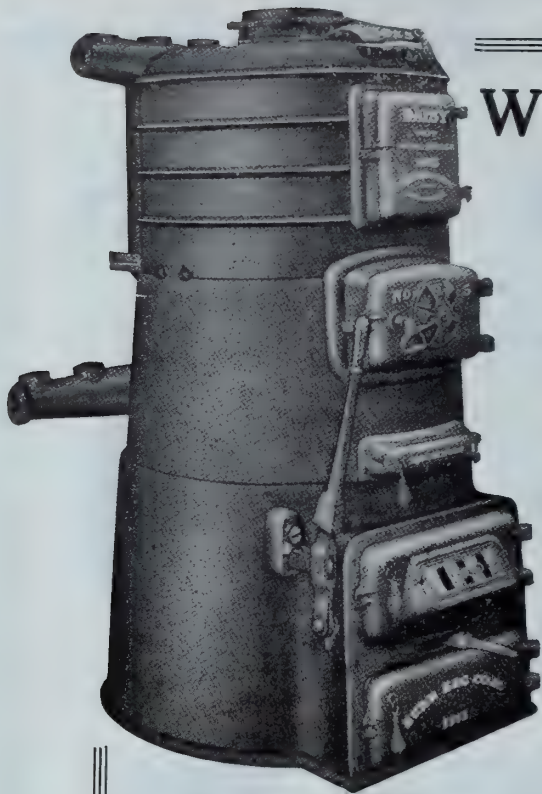
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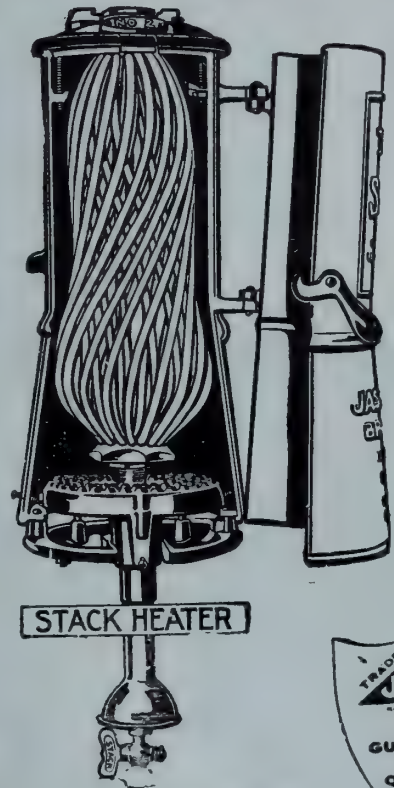
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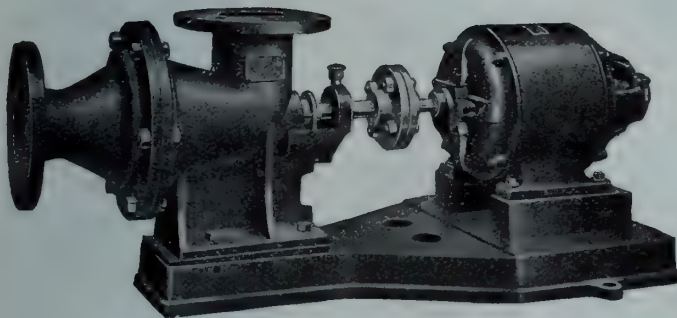
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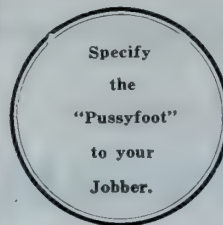
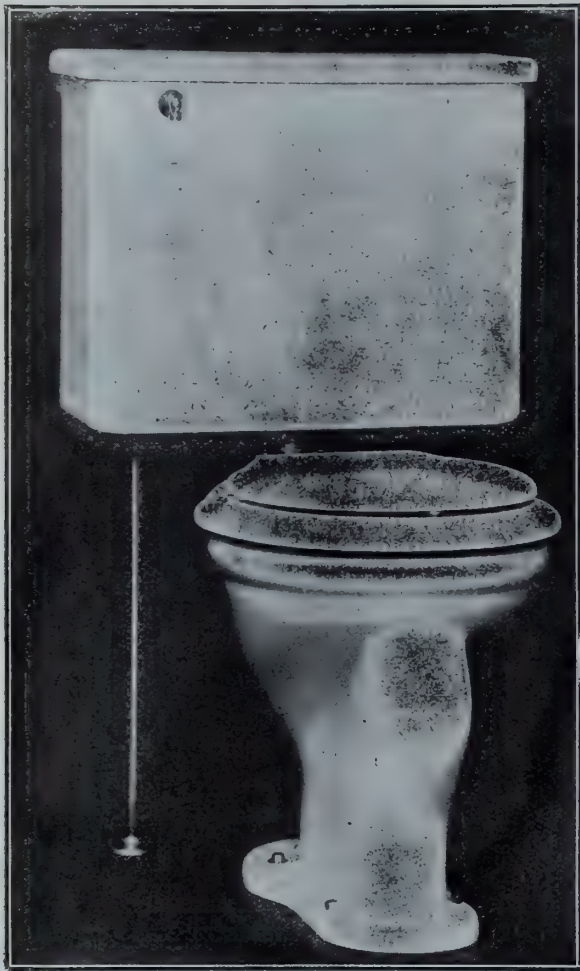
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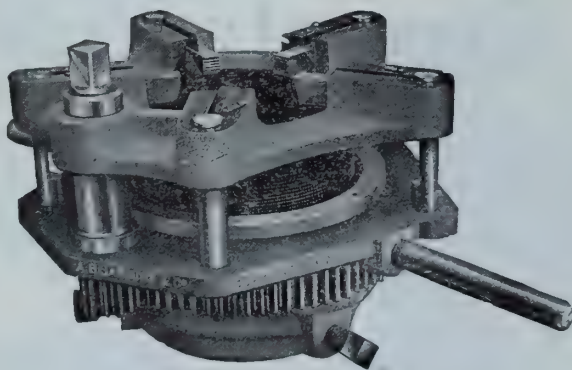
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Fig. 106

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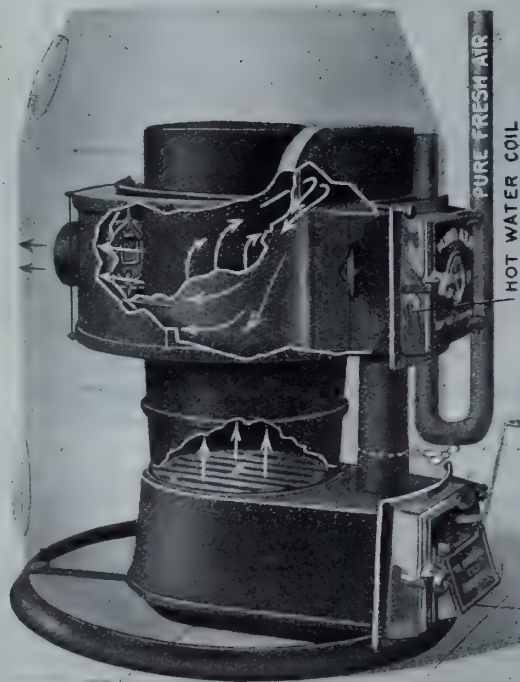
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

TORONTO, NOVEMBER 1, 1921

No. 21

CONTENTS

Wholesaler as Plumbing Merchandiser	13
Heating Pointers for Cold Weather	14
Reducing the Customer's Fuel Bill	15
Advertising Plumbing Price Declines	17
Small Set of Books for Plumbers	19
Do You Know of any Other Sheet Locks?	21
Editorial Comment	24
Sewage Disposal for Small Communities	25
News from Here and There	26-27
Hespeler Manufacturers Hold Exhibition	28
Market Conditions and Tendencies: Montreal, Toronto, Winnipeg	29-39

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Vol. XV.

TORONTO, NOVEMBER 1, 1921

No. 21

Wholesaler as Plumbing Merchandiser

Ontario Manufacturer and Wholesaler of Plumbing Supplies
Thinks Wholesaler is the One to Operate Showroom and Act as
Merchandiser While Plumber Should be Confined to Installation
Work—Price Becoming too Important a Factor to be Conjured
With in Sale of Plumbing Equipment

DURING THE past week a representative of Sanitary Engineer had the opportunity of discussing with an Ontario manufacturer and wholesaler of plumbing supplies, some features of the present situation as it affects this industry. This manufacturer has a number of ideas which might be looked upon by some in the trade as more or less radical, but they represent a point of view entertained by one who has had long experience in various branches of the plumbing business and from which some operators may be able to take some suggestions. Hence the opinions are given herewith.

Dealing with conditions in the plumbing industry and prospects for future trade, this manufacturer pointed out that business had recently taken a decided turn for the better and that the probability was that an improved tone in trade spread over the next few months would culminate in a much improved condition in the Spring with the likelihood of a building boom to stimulate the demand for plumbing and heating appliances. It was not expected that the recent improvement in business would continue over the next few winter months, because such a condition would be more in the nature of a boom than a return to normal conditions, but it was emphasized that from the number of enquiries now being made that there were good grounds for anticipating a revival of demand for plumbing installations for new homes in the Spring.

Where is Equipment Going?

Dealing with the recent stimulation of business this manufacturer confessed that he hardly knew where the plumbing goods now being sold in fair quantity were going, due to the apparent lack of new building. It was his opinion that there must be more building going on in the country than is apparent from reports and that operators have been working diligently to develop replacement business from existing properties. In this connection it was mentioned that the apparent lack of building, due to falling off in volume of permits issued, might be caused by the lack of construction of large buildings while there might be a good volume of small house construction under way. The nature of the demand, namely for small house plumbing installations, would seem to indicate that the latter deduction has some foundation.

This manufacturer and wholesaler is of the opinion that recent conditions in the plumbing industry, occasioned by the characteristics of the times through which we have been progressing, have demonstrated the need for some much

needed reforms. The necessity for plumbing and heating operators looking to new fields for work, the necessity of developing every possible dollar's worth of business from existing properties in the absence of new building, and the desire of everyone to economize to the greatest possible extent are all factors which have produced a highly unique condition, and those in the industry who have been unable to arrive at a satisfactory solution of the problem and follow a careful course of merchandising have "fallen by the wayside."

In this connection the manufacturer interviewed is of the opinion that a showroom for the average plumber is unnecessary and merely tends to increase his overhead charges to an abnormal degree when considered in proportion to its business pulling influence.

"The plumber is judged by his customers according to his efficiency, by the character of the work which he does and by the nature of his business dealings with them," said this manufacturer.

Wholesaler is Merchandiser

Discussing the point that the efforts of certain plumbers to set up showrooms were being made as a factor in elevating the trade to a merchandising standard, and to plainly differentiate between this class of plumber and the "shoestring" variety, working from basement shops and with a set of tools as their only asset, this manufacturer pointed out that the efficient plumber will secure all the business he can handle as against the "shoestring" plumber who is short on efficiency and long on charging. The opinion was expressed that the demonstrating of plumbing goods should then be left to the wholesaler who was described as the real merchandising element in connection with the distribution of plumbing goods. This manufacturer laid a definite line of demarcation between the plumber and the wholesaler of plumbing goods, the former being confined to efficient installation work and the latter being confined to the merchandising of plumbing goods. He pointed out that by the use of a central showroom the wholesalers should put forth every effort to increase the amount of plumbing equipment sold and that this work should be conducted on a merchandising basis. The wholesaler, it was pointed out, is in a much better position to show an extensive range of fittings than is the individual operator, and that with a wider selection to choose from and salesmen trained to make the most of their opportunity, the equipment sold would be greatly increased.

(Continued on Page 18.)

Heating Pointers for Cold Weather

Facts Which Show What the Open Window Does to the Coal Bill—Increase in Radiator Efficiency Due to Air Velocity—Effect of Automatic Temperature Regulation in Meeting the Problem

BUT LITTLE thought is ordinarily given to the increase in coal bill due to the opening of windows. This is an item which may be charged to ventilation rather than to heating, but it is more often due to wasteful practices of the tenants of a building, since if radiators are occasionally turned on or off to meet the heating requirements, but little ventilation will be required beyond that which takes place around window cracks and through walls.

Rooms should be cooled by turning off the heat rather than by opening windows,—so far as this method is consistent with suitable ventilation. However, it is doubtless more agreeable to a tenant to open a window than to bend down to operate the handwheel on a radiator valve, a practice which if successfully carried out requires considerable attention and thought.

Heating systems are designed for the maximum load which occurs when the weather outside is the coldest. In this latitude it is below zero less than 10% of the heating season. Consequently, the heating system must be run during the remainder of the heating season at less than full capacity, so that there is a tendency to overheat in the milder weather in all types of buildings.

Many an office building has been equipped by the tenants with window ventilators and other devices which increase the ventilation and therefore the heating requirements. With the high cost and scarcity of coal it seems advisable to give this matter of additional load more attention than it now receives.

Figures For a Six-Story Apartment House

With the previous remarks in mind, the following figures have been prepared for a six-story apartment house having thirty-eight apartments. In the calculations, the assumption has been made, based on lengthy observation, that on the average, in each apartment there are two windows 23 inches wide which are raised 3 inches from the bottom for 10 hours per day. The windows will ordinarily be closed in weather below 30 deg. F., for the simple reason that with windows open in such weather, the radiating surface will be inadequate for the conditions, and this has been taken into account in the figures. No attempt has been made to allow for unusual conditions which frequently occur and it is believed that the consumptions are extremely conservative.

In the usual apartment house, there are at least two 2-col. 9 section, 30-inch radiators, each of 36 sq. ft. capacity.

These are ordinarily set in a corner along a wall and at right angles to the window with a sill 26 inches high, so that with the window open the cold outside air passes directly over the entire radiating surfaces. At first thought, it would seem that only one-half of the surface would be exposed to the entering air currents, but if one smokes close to an open window on the pressure side, but in ordinary still weather, he will observe the smoke dropping directly to the foot of the radiator, since the latter creates a draft in that direction.

Increase in Radiator Efficiency Due To Air Velocity

The velocity of the air will average about 300 ft. per minute, thus increasing the efficiency of the radiator about 55 B. T. U. In addition to this there is an increase in the standard constant 1.67, which is the B. T. U. transmitted per square foot of radiation per degree of temperature difference per hour. This increase is approximately 2% for each 10 deg. of variation from the standard conditions of 150 deg. temperature difference. The latter is obtained with steam at 3 lbs. pressure having a temperature of 220 deg., and with the room heated to 70 deg. F., making a transmission of $150 \times 1.67 = 250$ B. T. U. per square foot per hour.

Calculations Based on Average Winter Conditions

From a study of the weather reports and selecting those for an average winter, it will be found that there are about 220 days in the heating season, of which 20 days are below 30 deg. F., the remaining 200 days averaging approximately 45 deg. F. The temperature difference with then be $220 - 45 \text{ deg.} = 175 \text{ deg.}$, which, with the constant 1.67 increased 5% as explained above to 1.75, will increase the transmission to $1.75 \times 175 \text{ deg.} = 306$ B. T. U. This is an additional 56 B. T. U. over that of the 250 B. T. U. for standard conditions and is due to the increase in temperature difference. Adding this to the 55 B. T. U. due to greater velocity of the entering air, will give a total increase of 111 B. T. U. and this multiplied by 36 sq. ft. of radiation equals 3996 B. T. U. per hour or 45% additional due to the opening of one window.

This amount checks closely, as it should, with the heat required to raise the volume of entering air from 45 deg. to 70 deg., an amount which is $(23 \text{ in.} \times 3 \text{ in.} \div 144 = 0.479 \text{ sq. ft.} \times 300 \text{ ft. per min.} \times 60 \text{ min.} \times 25 \text{ deg.} \times 0.02 \text{ B. T. U.} =) 4011 \text{ B. T. U.}$

Loss Expressed in Terms of Additional Coal Burned

For average boiler efficiency, each pound of coal will give 8,000 B. T. U. per pound, so it will be seen that $\frac{1}{2}$ lb. of coal will be required for each radiator of 36 sq. ft. capacity, because of the open window. Therefore, $\frac{1}{2} \times 2 \text{ lb. radiators} \times 10 \text{ hours} = 10 \text{ lbs. of coal per day per apartment, and } 220 \text{ days} \times 10 \text{ lbs.} = 2,000 \text{ lbs. or 1 ton per heating season. Thus, 38 tons additional are required for all departments, an amount which is about one-fourth of the coal ordinarily consumed in such building when the windows are not opened. This does not check with the previous statement of 45% increase, since the returns comprise an additional 10% of heating surface and there are various other conditions which enter into the building as a whole.}$

Losses May Be Higher Than Those Figured

The preceding figures show conservatively the coal which is wasted annually in a building of the class selected and beyond doubt the losses are somewhat higher, since it is impossible to figure all of the conditions and elements of waste. Windows are frequently opened wide, top and bottom, in all kinds of weather, both cold and windy, and with one window opened on the windward side and another on the lee side, the draft is considerably increased.

Effect of Automatic Temperature Regulation in Meeting the Problem

The lesson to be learned by recognition of such wasteful practices is obviously the adoption of some means to prevent their continuance. This is something which has long since been successfully solved by the application of various appliances which enter into the field of automatic temperature regulation. So well has this subject been covered in the "Advance Report of a Committee on Automatic Heat Control, as furnished to the Fuel Administration" that the following extracts taken from this report are presented in the words of the committee:

"All devices for automatic temperature regulation are and must be devices making for economy of fuel, since they shut off the heat supply whenever the desired temperature has been attained, turning the heat on again only when the temperature drops below the desired point.

"It is no uncommon thing, where automatic temperature regulation is not installed, to see a man devoting his en-

(Continued on Page 39.)

Reducing the Customer's Fuel Bill

Is the Heating Engineer Doing His Share to Assist Customers Toward Economy in Heating?—Unfortunately too Few Workmen Are in Position to Give Expert Advice—Some Common Defects—Importance of Draught

GREAT strides are being made at the present time in the Plumbing and Heating Industry, and in certain parts of the country, by advertising and other means, the trade is looking forward to even greater accomplishments. The "Plumber" is giving way to the "Engineer" and the latter is considering himself a more important personage in his community. The trade has always been looked upon as one of the necessary evils. Has it not been, to a large extent, our own fault.

The doctor is looked upon as the most important man in the community in health protection and one we cannot get on without. With the advancement of the last few years, as well as advertising by way of health talks, etc., in papers and periodicals, the public is in a better position to secure the best

physician when unfortunate enough to require his services. So with us; we must educate the public in the same manner, so that when work is to be done, the people will be in position to choose between the "Engineer" and the "Plumber."

There is one branch of our profession, which at the present moment is most important to our clients, and which has been very much overlooked by us. What are we doing, as a body, to help the public cut down their fuel bill? The various Governments and certain bodies are trying by experiments along this line to help the public, but are we doing our share?

Where Most Good Can Be Done

The place where we can do the most good for the advancement of our profession is where we come in direct contact

with our customer, and that place is usually in his home. Picture our friend getting out of bed on a cold winter's morning, in a cold house, and upon investigation gets the impression that there is something wrong with his heating system, and he immediately sends for a Heating Engineer. This is the best place possible for our propaganda for education. Was it a "Plumber" or a "Heating Engineer" that was sent for? The result tells the tale,—a knock or a boost.

I have made a special study of heating homes and as a result have made some very startling discoveries. The first and most important is that very few workmen, and few masters are in a position to advise the householder how to get the best results from his heating system, and he also rarely investigates

Getting Farmers Interested In City Plumbing



For the plumber who contemplates the arrangement of a showroom in which to display plumbing and heating equipment, the attractive layout shown herewith will be helpful. The walls have been panelled to good effect and along the walls are arranged a series of wall and pedestal basins. Mirrors and other bathroom accessories are also affixed to the wall. Sinks, drains, laundry tubs, etc., are shown on the panel at the rear behind which the plumber's office is located. The whole showroom is finished in white which, with the snowy white porcelain and enamelware, gives an attractive appearance. In the rural districts such a display will do much to whet the desire of the farmer for the plumbing conveniences of the city.

beyond his own line of business, the cause of a cold house.

A striking example of this is a case which recently came to hand, where a lady called me in to tell her why her tenants could not heat a house she had rented. The previous winter a "Plumber" had prevailed upon her to enlarge the furnace which she did and has one now sufficient to heat two houses the size of the one she was heating. The cause of the whole trouble was a defective chimney and as soon as it was fixed, everything was all right. However, her opinion of the trade in general is not the best,—caused by her needless outlay of money. More team work among the trade is required here, and too much emphasis cannot be placed upon this fact. By this, I do not mean to say that every job is right,—far from it, however, when it is right, no good results can be had by needless criticism, but when one is sure the work is faulty it is a very different matter.

No Experimenting

Again, is it advisable to experiment along these lines? No, for the simple reason that if all the petroleum produced annually in the United States should be burned for fuel it would replace but 12 per cent of their coal. By experiments carried on in England it was proved that if a manufacturer was spending \$10,000 a year on coal, oil would cost him \$18,000 for the same period. Electric heat is also too costly, for if coal costs \$40,000 per ton, and one could buy electricity at 1c per K.W. hour, heating by these two methods would cost the same. Therefore, there will be no radical change in the present system of heating houses, so we must educate the public to be in a position to get the most efficiency out of their plants as well as get them to install devices to help this along.

Another important fact is that of result of investigation made by the United States Bureau of Mines, the American Society of Mechanical Engineers, University of Utah, and numerous independent investigators, it appears to be an established fact even where high grade American coals are burned containing little or no moisture, there is an average wastage of 25 per cent. of heat value caused by inefficiency in firing and the impossibility of obtaining anything like perfect combustion on the grates.

At the present time when orders are so hard to obtain, not only will we be helping the consumer, but we can also build up some profitable business by our help. We can investigate and install devices which will increase combustion. We can recommend that furnaces be covered with asbestos. New consumers recognize the necessity of keeping flues clean, but if they knew that the loss in conductivity of boiler plate due to 1-32" of soot means a loss of 9.5 per cent. in heat, and 1/8" of soot a loss of 45.2 per cent., they would keep their furnaces much cleaner. Many, again, also imagine that by keeping a very low dirty fire on mild days they are saving coal, but they are not by any means. Nor do

all the consumers know the correct size of coal to use in their boilers to get the best results.

Importance of Draught

The most important thing about a furnace is the question of draught. As we all know no two furnaces work exactly alike for this reason, and very often a little care here will give remarkable results. Very often the draught is sluggish and again it may only be so at times. In the latter case it may be only when the wind is in a certain direction, which from local conditions of the chimney, causes air pockets, which will not allow the chimney to work. The principal defects should be easy to find, such as the smoke pipe being placed too far into the chimney causing partial or complete stoppage of draught, or obstruction in the chimney such as birds' nests, the remains of concrete forms, bricks, cement, etc., which with the help of soot soon fills up the opening. There may also be two or more openings in the chimney, or the chimney may be new and not thoroughly dry. Again, there may be holes in the chimney which allow air to pass through, and further, the chimney may not be high enough. Very often we find that a furnace has no damper, and if it has, is not working.

There is also the question of a number of so-called economizers, which as far as I am able to ascertain, are not correctly named but should be called "checks," because when they are put into operation, the heat of the system immediately starts to lower and the hot air of the basement is brought up through the chimney and lost. I have been using a device for hot water boilers, and meeting with much success for the past three years, which I think is a great boon to the consumer. On twin installed furnaces of the same size, one with an economizer and one without, the former noted a saving of 25 to 50 per cent. in the amount of coal consumed, and from 30 to 60 per cent. less ashes with no clinkers having been taken out.

This device really turns the furnace from a bottom draught to a top draught, and by burning the gases, permits of a more thorough combustion. The device is simplicity itself and the house can be kept at an even temperature without continually going to the furnace, and also permits it to be left for a longer period without attention.

Some Common Defects

I do not think it will be amiss if I mention here a few of the defects that are outside the trade, and which may at some time be of benefit to the heating engineer. In all new houses, but particularly of the class that are being built to-day, the construction has something to do with not getting the proper results from the heating system. When draughts are noticed around the windows, weather-strip is usually recommended. If the windows are to slide, 1-16 of an inch of play on each side must be left, which leaves a space 1/8" wide if the window works to one side. Through this opening considerable cold air can go when a wind is blowing, whereas metal to wood does not need any play, and fills up the space. But you still have the space between the window-frame and the brick or stone work. This varies according to the seasoning of the wood before it was put into the building. This space should be packed with oakum, and the best time to do this is after the building has been constructed at least two years. If, however, the draught is in an old building, the trouble may be caused by the 'pointing' around the windows having fallen out. Then again there may be some fancy brickwork which has holes in it where no pointing has been done.

These and other points should be at the finger tips of the "engineer"—thus he is in a position to convey his learning to his prospective customers. Let us therefore, take as a motto, "Educate the Public," so that a dissatisfied customer will be an unknown quantity even in the plumbing trade.

Damaging Effect of Electrolysis on Sewers

St. John, N.B., Engineer Says Much Damage to Sewers Caused by Electric Current from Rails

St. John, N. B.—Commissioner Thornton filed with the Common Council a preliminary report on the subject of electrolysis from the City Electrician, Barry Wilson. It was decided to have a copy furnished the Commissioner of Water and Sewerage and to deal with the matter of purchasing the machines mentioned in the report when the estimates are being made up for 1922.

Following is the report:
Gentlemen:

Herewith I beg to make a preliminary report on Electrolysis in the City of St. John.

I feel confident in stating that this matter is one of vital importance in the maintenance of uninterrupted water and

sewerage service. Although it seems impossible to prevent stray currents in underground pipes and cables, nevertheless these can be reduced to such a minimum degree by properly bonding, running return feeders, and installing boosters in the return circuit of railway systems, that little effect is experienced in the life of cables and underground pipes. Rigid rules and regulations are in force in some parts of Europe and United States to eliminate to a minimum degree electrolysis.

The effect of electrolysis from a railway operating point of view is a very expensive one, as it has been proven that the loss in power, due to low con-

(Continued on Page 13.)

Advertise Plumbing Price Declines

Plumber of Sherbrooke, Que., Gives Straight Talk in His Advertising to Those Who Think Plumbing Prices are too High—Percentage of Reductions Quoted—Going after Rural Plumbing Trade and Tinsmithing Business in Local Advertising

SOME samples of recent effective local plumbing advertising done by sanitary and heating engineers in various parts of the country are shown herewith. Perhaps the most radical departure from the usual run of such advertising is the one by Ernest Conley, sanitary engineer of Sherbrooke, Que., which under the heading "Who says Plumbing and Heating Prices have not dropped," gives a little talk on plumbing and heating business and gives a list showing reductions which have been made in plumbing and heating materials in the past year. The text of this ad is as follows:—

"Plumbing is a profession and should be regarded as such by everyone. The plumbers spend as much time and energy in perfecting themselves for their

calling as any other group of professional men, but they receive a smaller compensation than any other profession.

"As farm products have decreased in price so have building materials. Although some articles increased tremendously in price during the years of the war, plumbing and heating materials did not go sky-rocketing like a number of other building materials. Hence the percentage of drop need not be so large in order to reach the previous price level.

"When an article has increased a 100 per cent. in price a drop of 50 per cent. brings it back to the original price.

"Plumbing and heating materials constitute a very small part of the total building cost. In the average seven or eight room house where hot water is used the cost of plumbing and heating is

only about eight or ten per cent. of the total cost. In other buildings it is less.

"Following are some of the reductions made in plumbing and heating materials since one year ago:—Soil pipe and fittings, 37%; Lead goods, 31%; Brass radiator valves 30%; Brass goods generally 25%; Iron and malleable fittings 25%; iron pipe, 16%; enamelware, 15%; radiation, 28%; range boilers, 45%; other goods, 15% to 40%.

"Respectfully submitted by the undersigned for the consideration of all fair minded citizens."

Specials For Saturday

O. J. Muntz, tinsmith and plumber of Ingersoll, Ont., advertises a special price on a large quantity of extra heavy blue-black stovepipe for Saturday. An illustra-

Who says Plumbing and Heating Prices have not dropped?

Plumbing is a profession and should be regarded as such by everyone. The plumber spends as much time and energy in perfecting himself for his calling as any other group of professional men, but they receive a smaller compensation than any other profession.

As farm products have decreased in price so have building materials. Although some articles increased tremendously in price during the years of the war, plumbing and heating materials did not go sky-rocketing like a number of other building materials. Hence the percentage of drop need not be so large in order to reach the previous price level.

When an article has increased a 100 per cent. in price a drop of 50 per cent. brings it back to the original price.

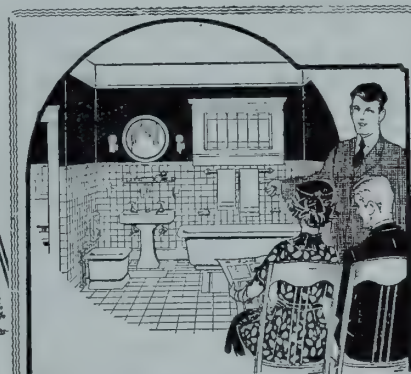
Plumbing and heating materials constitute a very small part of the total building cost. In the average seven or eight room house where hot water is used the cost of plumbing and heating is only about eight or ten per cent. of the total cost. In other buildings it is less.

Following are some of the reductions made in plumbing and heating materials since one year ago:

Soil pipe and fittings	37%
Lead goods	31%
Brass radiator valves	30%
Brass goods generally	25%
Iron and malleable fittings	25%
Iron pipe	16%
Enamelware	15%
Radiation	28%
Range boilers	45%
Other goods	15% to 40%

Respectfully submitted by the undersigned for the consideration of all fair minded citizens.

ERNEST CONLEY
Sanitary Engineer.
Phone 212.



When Planning Your Home

Consideration of health comes first. That means plumbing—good sanitary fixtures and fittings in the kitchen and elsewhere. Above all, the bathroom must be right. It must be as spick and span and wholesome as you would have yourselves and your children.

Let us show you the lustrous white porcelain enameled bathroom equipment we have in our store. You will find its price as satisfactory as are its appearance and obvious convenience.

DUFTON & SAUNDERS

PLUMBING HEATING TINSMITHING
46 Huron St.—(Nr. Stone Bridge)—Phone 1237.



OUR EQUIPMENT FOR SHEET METAL WORK

is so complete that we are amply able to fill any order, large or small, whether it be for new flues for the furnace in the cellar or a new roof or cornice for the top of the house. We will gladly furnish you with an estimate for any sheet metal work needed. You'll find our figures very reasonable.

J. McKINNON

Heating and Plumbing.
P. O. Box 185 Phone 36 121 Victoria St.

Plumbing for Country Homes

WHERE COMFORT PAYS

It is a home full of comfort, built for living as well as for working. You can live better, more easily, more healthfully and at the same time make a profit out of it. It pays in actual cash. Look into it further. The production of beef, pork and milk. Water under pressure for fire protection, lifting the burdens of household drudgery from your wife's shoulders for more important duties. We'll be glad to make a complete estimate for you.

CALL, PHONE, OR SEND A POSTAL.

W. H. DONEY
PLUMBER & ENGINEER

SPECIAL FOR SATURDAY ONLY!

We have made up for Saturday a large quantity of extra heavy blue black stovepipe per length 26 gauge extra heavy galvanized iron for furnace pipe at per length

30¢
65¢

Why The Moncreif Furnace?

The Moncreif has proven to be the popular pipeless furnace and here are some of the reasons why it is the favorite.

- 1—IT HAS GAS JOINTS
- 2—ALL JOINTS ARE CUT JOINTS.
3. IT IS AN ALL CAST FURNACE having a large cold air space which will save you fuel.

O. J. MUNTZ
THE FURNACEMAN.
500 DUNDAS STREET
TINSMITHING AND PLUMBING
PHONE 301

Have Your Bathroom First Class

Have it second to none among the rooms of your home. Your family uses that room constantly, so why not have it right? Let us install our modern sanitary equipment, such as porcelain tub, wash basin, toilet, footbath, etc.

Chestnut & Sons, Ltd.
Plumbing Department
Phoenix Square

tion of a furnace with some details are given.

"When planning your home, consideration of health comes first" says the ad by Dufton & Saunders, Stratford, Ont., continuing, "That means plumbing—good sanitary fixtures and fittings in the kitchen and elsewhere. Above all, the bathroom must be right. It must be as spick and span and wholesome as you would have yourselves and your children. Let us show you the lustrous white porcelain enameled bathroom equipment we have in our store. You will find its price as satisfactory as are its appearance and obvious convenience."

Rural Plumbing

In line with the steps being taken to develop farm plumbing trade, W. H. Doney, Brampton, Ont., advertises "Plumbing for Country Homes." Under the heading, "Where Comfort Pays" is listed the following: "A farm with a water supply system is more than a farm, it is a home full of comfort, built for living as well as for working. You can live better, more easily, more healthfully and at the same time make a profit out of it. It pays in actual cash. Look into it further. Water under pressure for fire protection, lifting the burdens of household drudgery from your wife's shoulders for more important duties, are only some of the advantages. We'll be glad to make a complete estimate for you."

Tinsmithing

J. McKinnon of Kamloops, B. C., advertises his equipment for sheet metal work is so complete that he is able to fill any order, large or small, whether it be for a new flue for the furnace in the cellar or a new roof or cornice for the top of the house.

"Have your bathroom first class" is the admonition on the ad by R. Chestnut & Sons, Ltd., Fredericton, N. B., continuing, "Have it second to none among the rooms of your home. Your family uses that room constantly so why not have it right? Let us install our modern sanitary equipment such as porcelain tub, wash basin, toilet, footbath etc."

Using Booklets

The firm of Jean J. Daoust, Ltd., St. Boniface, Man., makes good use of a three sheet booklet printed in three languages. A recent issue of this booklet states, "A modern plumbing and heating installation in your home is an asset, let alone the consideration that it constitutes a positive safeguard to the health and is moreover of indispensable assistance to the housekeeper."

Advertising a combination sink and laundry tray as a kitchen necessity, Flynn Bros., Niagara Falls Centre, Ont., state "If there is one in your home your wife and daughters will say they could not do without it. If there isn't ask them what such a sink would mean to them—one specially made for laundry work as well as for dish-washing, equipped with drain board and wringer holder and made of snowy white porcelain enamelware.

We install every kind of sanitary convenience required in homes where work is made easy and health is the prime consideration."

Simons Bros., Kingston, Ont., advertise tinsmithing work thus: "We have everything in tin and sheet metal. We have facilities for making a small can or a monster tank, a simple leader or an elaborate cornice or portico. If you are in doubt as to what is best adapted for your purpose in tin or sheet metal we shall be glad to assist you with our advice based on experience and knowledge.

"Plumber to let" is the heading on an ad by Farquhar Bros., Ltd., Halifax, N. S., stating "Right now is the time reserved for private plumbing. A little later most of our best men will be tied up handling new building contracts. Better take advantage of our free inspection now and enjoy short slack season prices. We could lay these men off, but they're too good for that—instead take their services for less."

WHOLESALE AS PLUMBING MERCHANDISER

(Continued from Page 13.)

Showroom Stock Depreciates

Supporting this argument this manufacturer pointed to certain plumbers who had opened plumbing showrooms only to find that the overhead charges were such as to place their prices on installations so far above competitive bids as to result in the loss of much business. These operators found that the showroom did little to increase the sale of equipment and due to the slow turnover the goods on display soon became shop worn and depreciated in value. It was soon found that it was not a paying proposition to have hundreds of dollars invested in various pieces of plumbing and heating equipment, only to have them remain in the showroom until heavy interest charges against the investment they represented had been run up and until the heavy overhead charges of the showroom had eaten up all the profit there would be in them even if they were sold. It was stated that even if such an operator was to get one purchasing customer in the shop in the day and spend half an hour with him that for the remainder of the day the overhead charges mount up to great heights and soon reduce the margin of profit made on the one sale and also on the other work which comes to the operator through the ordinary channels.

Price More Important Factor

It was emphasized that price is becoming a most important argument in the sale of any line and that this must be taken into consideration by the operator in the direction of his business. It was the opinion that the plumber could make splendid use of the wholesaler's showroom by sending his

customers to it for an examination of equipment, and on the other hand the wholesaler will likely sell equipment to many people who would otherwise not be purchasers, and so increase the volume of installation work for plumbers.

In connection with the quoting of prices on plumbing equipment in wholesalers' showrooms, it was the opinion of this manufacturer that much business was being lost today due to the practice followed in many showrooms of quoting prices to buyers sufficiently high to protect the operator who would be doing the installation. On this basis prices quoted were so high that much business was frequently lost. Under the plan suggested, of concentrating the displays in one central showroom and prices quoted separately on equipment and installation, allowing in each case fair profit to all concerned, this danger would be removed and more business result.

"Price is becoming too important a factor in business to be conjured with as is now being done in the sale of plumbing equipment," said this manufacturer in support of the plan outlined.

EFFECT OF ELECTROLYSIS

(Continued from Page 16.)

ductance in the return feeder is more than sufficient to pay for the interest and sinking fund on the cost of installing a heavy copper return feeder, in addition to properly bonding rail ends and cross bonding between rails.

I am informed from different sources, and from those who speak with authority on the subject, that a large percentage of water main breaks have been due to the passing of electric current from the water mains back to the rail return system of the electric railway.

In laying out the water system at the present time, every precaution is taken to have all mains laid in streets or districts where there will be slight possibility of them coming in direct contact with electric railway systems, and that the return circuit consist of a copper return, in addition to having the rails properly bonded and used as an auxiliary return circuit. But in view of the fact that the water system in this City was installed previous to the knowledge of existing troubles through electrolysis I feel that the proper method of procedure would be to have a complete potential survey of the entire system in the vicinity of the Street Railway tracks to make excavations where possible to obtain the current flow in the water mains as well as taking a potential gradient of the tracks per 1,000 feet.

From the information thus obtained and a suitable map of the water supply system, the dangerous area could be readily defined and eliminated.

Small Set of Books for Plumbers

Proper Bookkeeping in the Plumbing and Heating Shop Commences with Small Set of Books for the Small Operator, Allowing Expansion as Business Grows—Valuable Information Based On Findings of National Trade Extension Bureau

THE previous article dealt with the Workman's Order and the Sales Journal. These two forms or sheets give a complete record of every sale. They also furnish information as to the cost and profit on sales information that is absolutely necessary in every successful business.

This article will describe the Purchase Journal. Every purchase, whether for cash or on credit, is entered on these sheets. Herewith is shown a sample of the heading and some entries on this sheet condensed for lack of space.

Two sample entries have been made. One an invoice from the supply house. The other a Weekly Pay Roll. In the first column is entered the date on which the entry is made. The next column headed "L. F." which stands for "Ledger Folio," is used to indicate what further entry is made of the transaction. The check mark in this column, for the first entry on the sheet, indicates that the entry has been posted in the Smith Plumbing Supply Co., account in the Ledger. This is done because there are many purchases during the month from this firm, and they are not paid for until after the end of the month. It is just as necessary to know how much we owe our different creditors, as it is to know how much our different customers owe us. Therefore, all purchases on credit are assembled on separate pages ac-

cording to the firms from whom they were made.

Many contractors fail to do this, relying on the supply house statement at the end of the month for the amounts they owe. This is gross carelessness, because every one is liable to mistakes, and through lack of this record you may be paying for something you did not get. Such a record as is furnished by a creditor's statement is not a permanent one, and when wanted in the future often times cannot be located.

The next entry is a Cash transaction, so that it is not necessary to carry this to the Ledger as was done with the previous one. However, we indicate that it has been paid by putting the number of the check which paid it instead of the check mark. In doing this, however, be careful to see that the amount of the entry in the Cash Book is exactly the same as the amount entered in the Purchase Journal.

The next two columns are self-explanatory, covering the name of the party from whom the purchase was made, and the details of the purchase.

The next column is for the amount of the invoice or purchase. This column is headed "Accounts Payable," because the amounts entered in it are amounts we have to pay. These are the amounts which are posted to the respective accounts in the Ledger when the transac-

tion is on credit, as illustrated in the first entry. You will note from the heading that they are to be entered on the Credit side of the Ledger account.

The next column is not needed by every contractor. Some times, however, when goods are bought from out of town firms, part or all of the freight is allowed by the seller. Some times this freight is deducted on the invoice. Where this is done the amount deducted is entered in the column headed "Freight Allowance." In the entry shown here, the actual cost of the goods was \$426.00, but the amount to be paid was only \$423.57. Freight Allowance was credited with the difference of \$2.43, and the Supply Company credited with the actual amount owing. When this Freight on the shipment is paid to the Railroad Co., it is charged to Freight Express and Drayage.

In the remaining columns are distributed the same amounts as entered in the two columns just mentioned. These entries are made according to what the purchase was for.

You will note that these columns are divided into two general sections "Job and Contract Accounts," and "Overhead Accounts." The first named section includes all purchases for resale, that is, items that are part of the cost of different jobs. You will note that there are columns on the Sales Journal corres-

CASH DISBURSEMENTS

CREDIT				Date	PAYABLE TO	FOR	L.F.	Check No	DEBIT	
Amount	Discount	Currency							Accounts Payable	General Ledger
Check	Earned	Spent		1921						
415 10	8 47			6/13	Smith Plumbing Co	Invoice 6/3	✓	122	423 57	
125 00				6/16	Pay Roll	Week 6/15	P.S.	123	125 00	

CASH RECEIPTS

DEBIT		Deposited IN Bank	Date	NAME	FOR	CREDIT	
Cash Recieved	Cash Discount					Customers Accounts	General Ledger
			1921				
2 00		2 00	7/30	N. Gross	Job #504	2 00	
31 12	163	31 12	7/30	John Jones	Job #505	32 75	

PURCHASE JOURNAL FOR MONTH OF													
				JOB AND CONTRACT ACCOUNTS					OVERHEAD ACCOUNTS				
				CREDIT	CREDIT	DEBIT				DEBIT			
Date	L.F.	Name	For	Accts Payable	Freight Allow	Material	Prod Labor	Miscellaneous Job Accounts	Amount	Office Salaries	Advtg Donates	Miscellaneous Overhead Accts.	Amount
6/5	✓	Smith P & Co	Invoice 6/3	423 57	2 43	426 00							
6/6	ck 123	Pay Roll	Week 6/15	125 00			44 00			70 00		Non Prod Labor	11 00

ILLUSTRATION OF PURCHASE JOURNAL

ponding to these. You should watch carefully to see that the total of each of these various columns does not exceed the total of the corresponding column in the Sales Journal.

The column in the Purchase Journal shows the amount bought and the column in the Sales Journal the amount sold. With the exception of material, everything bought is resold on some job or contract and should be figured into the cost of the job, and entered in the Sales Journal. Where the total on the Purchase Journal is greater than on the Sales Journal it indicates that all costs have not been properly charged. Watch this closely it is one of the leaks that exists in many shops.

Overhead Accounts

The other section headed "Overhead Accounts" covers all expense items in connection with the business and the total of all the columns in this section is the amount that must be covered by your Overhead percentage. In the Sales Journal is a column marked Overhead. The total of this column should be compared with the total of all columns in the Overhead section of the Purchase Journal. If the Purchase Journal total is greater it indicates that the Overhead percentage is too low. This is another leak in the business and should be watched even more closely, if possible, than the comparison referred to regarding the Job and Contract section.

In each of these sections is a column "Miscellaneous Accts." Enter in these columns the amounts for which a separate column has not been provided, writing the name of the account in the wide space provided. For instance you take out a permit on a job. When the entry is made on the Purchase Journal enter the amount first in Accounts Payable column and also in the Miscellaneous Accounts column (writing Permits) in

the Job and Contract accounts section.

When you pay rent do the same except use the Overhead Accounts section. In the first instance the permit is to be charged to a certain job and entered on the Workman's Order and from these to the Sales Journal as part of the cost. In the second instance rent is part of the Overhead expense.

You will note the word Debit over all these columns. At the end of the month these columns are totalled and if desired can be carried to an account in the General Ledger. This however is not necessary in a small business.

When a page in the Purchase Journal is filled, foot each column and test the correctness of your work by seeing that the sum of the Debit column totals equals the sum of the Credit column totals. When all transactions for the month have been entered add up each column and apply the same test. Carry forward underneath the month's figures, the totals from the previous month. You then have a statement of your purchases also of your Overhead expenses for the month and for the year to date.

The use of this journal will prove a great help at the end of the year in making up your Income Tax return. You have an itemized total of all your expense accounts and it will not be necessary to go through the entire year's business and gather this information. Without such a record this is very difficult to do, to say nothing of the time involved.

The Cash Book

In the Cash Book is kept a record of all Cash Received and Spent. Every cent of Cash taken in should be deposited in the bank. All disbursements (money spent) in excess of one dollar should be made by check. By following this practice your Cash Book becomes your itemized account with your bank. Your

checks are receipts and records of what you have spent.

Of course there are times when it is very inconvenient to make certain payments by check and currency is necessary. To take care of these, set aside for this purpose, a certain fund of, say, \$25.00, or more if necessary. Keep this money in the safe under lock and key, and every time any of it is spent make a record of how much and what for, either in a small memo book or by putting a receipt or ticket in with the money. When this fund is nearly spent, add up the tickets or the entries in the memo book, and draw a check for the exact amount of these tickets or entries. Go to the bank, cash the check and put the money in the original fund. This should bring the fund back to the amount you originally started with. Treat these checks as purchases and enter them on the Purchase Journal, showing in the proper columns what the money was spent for, as shown by the tickets or entries in the memo book. By this method you avoid the petty annoyance of balancing the cash every night, and the numerous "overs and shorts" that are continually coming up. The total of the tickets or entries, plus the cash in the box, should equal the amount of the fund. This system of handling cash is in universal use, and is recommended by every good accountant. It is called the "Imprest Fund" system. When the check is drawn for the original amount it is entered in the "Amount Check" column, and also in the "General Ledger column" on the Cash Disbursement sheet.

Entering The Cash Receipts

Enter the amount of the check or cash received in the first column. In the next column enter any cash discount allowed the customer for prompt payment. If you are in the habit of al-

SALES JOURNAL FOR MONTH OF															
					Amount Charged	PLUMBING AND CONTRACT ACCOUNTS					STORE SALES				
					DEBIT	CREDIT					CREDIT				
Job No	Date	L.F	Name	Address	Customers Accts	Material	Prod Labor	Overhead	Miscell Job Accts	Amount	Gain	Material	Overhead	Gain	
504	3/25	✓	Mrs H Hymas	Elon Apts.	17 30	328	550	519	Truck	75	258				

ILLUSTRATION OF SALES JOURNAL

lowing a discount for cash you should also enter the amount of such discount on the Workman's Order, opposite "Discount," under the heading Cost Recap, then copy the amount in the proper column in the Sales Journal. By doing this you will not have any deduction from your profits to cover this, because it will have been deducted when the cost was figured. On the contrary there will be additional profit for you arising from customers failing to pay in time to be allowed the discount which has been set aside out of the profits for them. Allowing Cash Discount is a wonderful help in keeping up collections.

The next column, "Deposited in Bank," is to be used for entering the items that are deposited in the bank. The total of each deposit can be entered, or each item entered in the "Cash Received" Column, can be extended into this column also.

This column is provided for offices where the Petty Cash method is not used. In such cases, all checks deposited should be extended in this column, and, in addition, the amount of currency deposited should also be entered. The total of this column for the month can be checked against the total of deposits as shown by the Bank Book or statement.

The column L. F. (Ledger Folio) is for the check mark which is used to indicate that the item has been posted to the Customer's Account in the Ledger.

The column on the right side, "Customers' Accounts," shows the amount to be credited to the customer, and is the amount to be posted to his account. Where the Cash Discount is allowed, this "Customer's Accounts" column amount is the total of the amounts in the "Cash Received" and "Cash Discount" columns.

The next column, "General Ledger," is for all amounts received from sources other than customers. This includes money borrowed from the bank, etc., or cash invested in the business by the proprietor. It does not include Cash Sales, which should be entered in the "Customers' Accounts" and credited to a "Cash Sale" account in the Customers Ledger. A corresponding charge for all Cash Sales should be made in the Sales Journal, and costs figured on such sales just the same as on Charge Sales. A Workman's Order should be made out for Cash Sales on which all sales for a week or longer can be entered, and the total carried to the Sales Journal.

Each sheet should be totaled, and the work proved by the same method as used in the Sales and Purchase Journals. The combined totals of all Debit columns should equal the combined totals of all Credit Columns.

Entering Cash Disbursements

In the first column, "Amount Check," enter the amount of every check drawn. In the next column, "Cash Discount," enter the amount of discount deducted for prompt payment on all purchase invoices.

The next column, "Currency Spent," is for use in offices where "Petty Cash Fund" system is not used. Enter in

this column all expenditures other than by check—that is, in currency.

By a check mark in the L. F. (Ledger Folio) column, indicate such payments as are made on open accounts that are carried in the Ledger. This check mark is to be made when the entry is posted in the Ledger. On Cash transactions that are entered in the Purchase Journal only, enter the letters "P. J." when the check number is placed in the L. F. column in the Purchase Journal.

In the column marked "Check No.," enter the number of the check drawn.

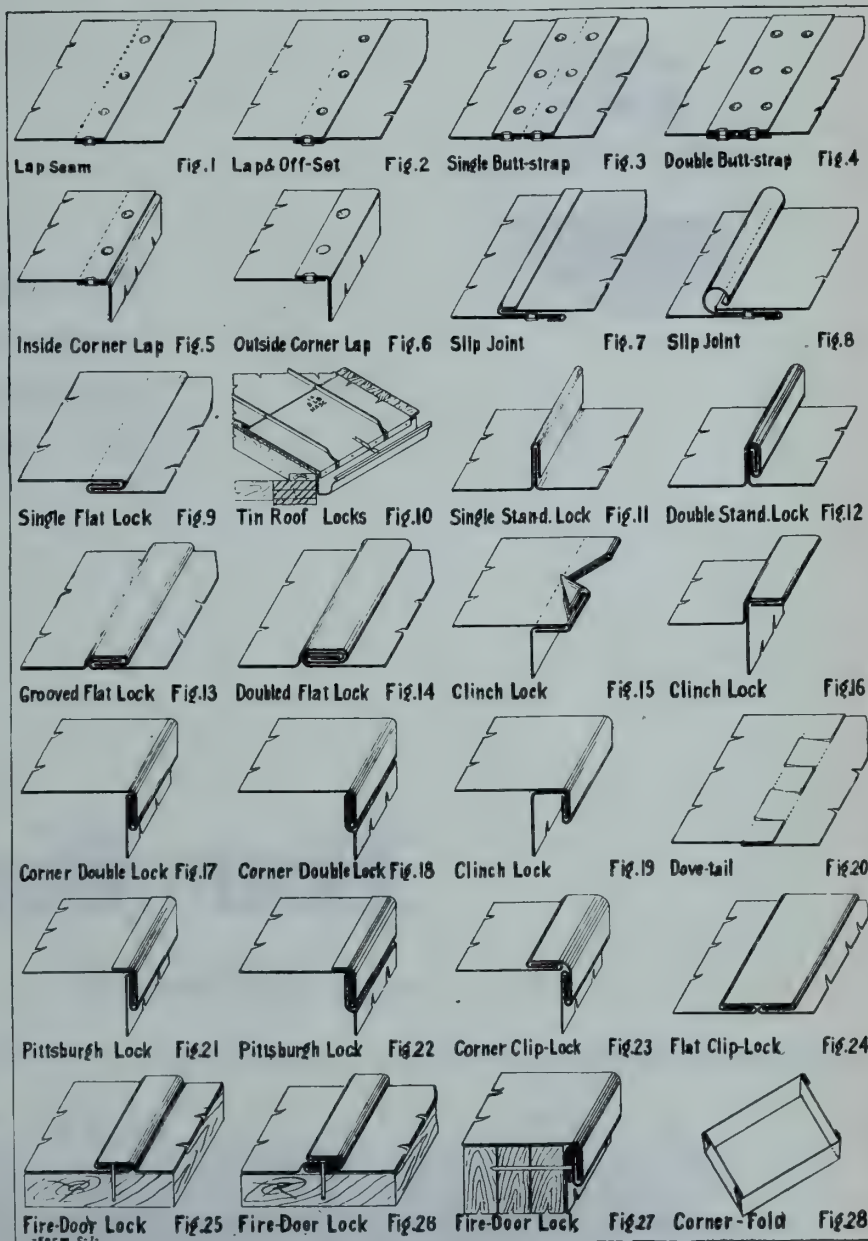
The next column, "Accounts Payable," is for the extension of the amount

or amounts entered in the first two columns, "Amount Check," and "Discount Earned." All payments covering transactions entered on the Purchase Journal should be extended into this column. This includes also payments made on Credit Accounts where several entries are made in the Purchase Journal during the month, and from there posted in the Ledger.

In the last column, "General Ledger," all amounts are to be extended where the entry was not previously made in the Purchase Journal. Entries of this kind which occur frequently are pay-

(Continued on Page 28.)

Do You Know of Any Other Sheet Locks?



A group of twenty-eight sheet locks which will be of interest to the tinsmith. This group has been assembled only after extensive enquiry among tinsmiths of the country and if any other locks are in existence which are not noted here, the Editor will appreciate the information.



The Infantry



*With the infantry of any
in battle. Empires rise
succeeds or fails.*

The infantry of the Sanitary Engineer
hands rests the fate of the whole in-
genetic master plumbers who go out
own prosperity but the success of the

*PORT HOPE realizes that
the whole plumbing situation.
every way possible; by cooperation
him to buy only through jobber
and above all by building into
of material, efficiency of work
are unexcelled anywhere.*

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Winnipeg Office:
405 TRIBUNE BLDG.





of Business

*the eventual decision
just as their infantry*

Field are the Plumbers. In their
Aggressive, determined, ener-
gic---will assure not only their
success as a whole.

himself holds the key to
success is to help the dealer in
newspaper advertising; by urging
the dealer to make of economy and service
the key to HOPE products quality
and beauty of design that



J. Company, Limited

Head Office:
100 BAY BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.



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Editorial Briefs

MOVIES to educate property owners as to the correct method of installing plumbing, are to be used in the country to the south. Educational authorities have conceived of the plan of circulating a motion picture film showing the correct way of installing plumbing and its importance from the health point of view. This is a means of education which should prove very effective, dealing with a subject which has been only too much neglected.

A PLUMBER who is doing his utmost to convince his prospects of the necessity for having more than one lavatory in the home points to the fact that before plumbing became common and the bathroom a part of every modern home, every bedroom had its washstand. Though it lacked the boon of hot and cold running water, yet it served an important purpose because it was convenient. The introduction of the bathroom has resulted in discarding the washstand in each room but extra lavatories have been overlooked and much inconvenience sometimes results where there are guests or a number of young children in the home. Many homes need two or more lavatories. This is something which both plumbers and architects might keep in mind.

THE PLUMBING and heating engineer who operates a showroom might well take a leaf from the notebook of other retail merchants who are now making best use of their window displays. These merchants have found an increase in the "shopping" spirit among customers. This means that they are comparing prices and quality more than was the case during the boom years. Therefore the necessity of emphasizing good value and of showing prices is evident. People need sanitary equipment and they will go "shopping" for it just as they will for other lines. In planning the window display or showroom display, the plumber might well keep this tendency in mind and give attention to plainly showing prices, particularly those announcing bargains.

INSINUATIONS concerning the charges made by plumbers continue to be made in the daily newspapers and elsewhere and the usual crop of jokes in which the plumbers' bill is the butt, continue to be made. While it may be true that some operators are too much inclined to loaf on the job and so run up a bill of considerable proportions for a comparatively small job, yet it is a fact that by far the great majority of plumbers follow the policy of giving a square deal. The far-seeing plumber will realize that a reputation for honest dealings will do more to develop his business than anything, and sooner or later those who claim to be overcharged for plumbing work will realize that all plumbers should not be placed in the same class. Then the opera-

tor whose method of charging has produced such dissatisfaction will be forced to change his ways or take up some new line of trade.

PLUMBING and heating engineers who operate showrooms and have a number of appliances on hand should keep in mind the fact that the longer those appliances stand on the floor unsold, the greater the overhead charges against them and sooner or later they will represent a loss to the seller even at the time of sale. Few plumbers realize that equipment valued at two hundred dollars will have interest charges of twelve dollars against the capital invested in it within one year. This is to say nothing of the other overhead charges of the shop. The only way to combat this is to speed the turnover of all showroom goods.

Heating System Economy

WITH THE approach of the colder weather the heating engineer is presented with a splendid opportunity for developing trade in furnace and installation work. Manufacturers report an active furnace business this Fall which indicates that a normal number of installations must be under way in various parts of the country. This Winter as perhaps never before, is the necessity so great for economizing on the fuel bill. Coal is high in price and the householders' earnings have in many cases been reduced to such an extent that real economy must be practised. The heating engineer who can positively demonstrate ways in which the fuel bill can be reduced will be able to secure business at this time.

In this issue will be found a number of helpful suggestions along this line. There is no doubt but that the monetary loss of faulty house construction and lack of information on operating the fires, is very great in most Canadian cities. For instance it was recently shown that to heat an apartment in a Western Canadian city for a winter consumed coal of a value of 35 per cent. of the gross revenue of the apartment. There is much loss due to tenants preferring to open the window to cool the rooms than to turn off the heat. In one article in this issue dealing with a six floor building having 38 apartments, it is shown that through the average custom of having the window open three inches for ten hours a day a loss of one ton of coal per apartment, or 38 tons for the building, occurs each heating season.

It would seem from the foregoing that automatic temperature regulation is one of the surest means of combating the difficulty. Truly the regulation of temperature is a delicate matter and one which cannot be adjusted by the tenants of a building without much fuel loss occurring. Therefore the delicate instrument of regulation becomes of more importance, and where the building is considerable in size and has many rooms, a system of regulation having many units—such as the type using compressed air as motive power—or an electrical system, is said to be least expensive and most satisfactory. With its control of each unit of radiation, varying the amount of heat as the varied exposure and heat source conditions of the buildings require, such a plant must reach a high efficiency. Maintenance costs, on the average, not more than 2 per cent. of the cost of the plant. It is roughly estimated that a good system of automatic temperature regulation can be installed in a building for from 5 to 10 per cent. of the cost of the heating plant.

From the above figures it should be easy for the heating engineer to prepare definite statistics showing his prospects just what can be accomplished in the saving of fuel due to correct firing, adequate covering of heat pipes, proper ventilating and regulation of heat.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May Be Referred to and Studied

Article No. 41 of Series Illustration No. 83

THERE are several different kinds of pumps on the market for lifting liquids to a higher elevation, but the piston or plunger pump and the centrifugal are usually employed and has proven so far the most successful. Other styles such as the oscillating and screw pumps have been tried without much success.

In deciding between the plunger pump and the centrifugal pump, local conditions must be taken into consideration, but with an ordinary lift the centrifugal is usually more economical to run than a plunger pump.

To operate a centrifugal pump successfully you require a constant volume of sewage all the time the pump is to operate for its proper and efficient working, and this necessitates the installation of a storage basin for collecting the sewage which is sometimes an objection as previously explained, but becomes absolutely essential for installing an automatic pumping plant for starting and closing down the pumps without manual labor.

The plunger style of pump required the removal of all large solids or gritty matter, hence the sewage must be well screened and passed through some sort of settling tank to remove the large solids and gritty matter, otherwise the grinding action of the grit wears out the moving and vital parts of the pump. This is more noticeable in this style of pump installations should be preceded with than in a centrifugal but in most cases screens and grit chambers.

The general construction of a centrifugal pump is briefly as follows:

A series of curved blades or discs are mounted on a spindle and made to revolve in a cast iron case in a similar manner to a fan-blower. The revolution of these blades, aided by the pressure of the atmosphere brings up the water and it is upon their proper proportion, construction and arrangement that the effective working of the pump chiefly depends. The blades, for effective results, should be arranged so that the water enters the pump with as little friction or shock as possible and with this object in view the blades are usually made curved and fixed almost tangentially to the periphery of the pump disc; they are made of steel and the disc should be very carefully balanced or the bearings will wear away

rapidly and produce uneven motion on the water.

A well designed centrifugal pump will discharge a larger volume of water in proportion to power used than any other. It will lift up to 20 feet but discharges more water as the lift decreases, providing the same working conditions are maintained—about 7 feet is found a very effective lift.

The pump may be placed either above or below the water level and if the latter

is adopted the speed may be increased and a larger discharge obtained. The speed of the water through the pipes should not exceed 4 feet per second as the friction in the pipes increase in proportion to the square of the velocity. To reduce the friction of the water in a pump the suction should be arranged to enter at the side of the disc. The pump casting should be so arranged that the slides can be taken off to allow the pump disc to be periodically inspected and cleansed; hand holes should be fitted with bayonet pointed covers, placed on either side of the suction pipe so that any obstruction can be readily removed.

PUMP CONTRACT AWARDED

The Dominion Engineering Works, Limited, Lachine, Quebec, have secured the contract for the 3-30 million gallon electric pumps, 12-36 inch Johnson combined stop and check valves, and 6-42 inch gate valves, required for installation in Montreal's new low level pumping station.

RETURNING TO WORK

Chicago.—Five thousand members of the Journeymen Plumbers' and Gas Fitters' Union who have been on strike since the announcement of Judge Landis' wage award of \$1 instead of \$1.25 an hour, are returning to work under an agreement signed with the Master Plumbers' Association.

TESTS WATER SYSTEM

Birch Cliff, Ont.—Public Utilities Commissioner Alfred Essex, resident engineers and contractors' workmen, tested the water mains, hydrants and valves of the new Southwest Scarboro water system and were pleased with the results. The report in a morning paper to the effect that water had been turned on in 320 houses is incorrect. Commissioner Essex states that more tests are to be carried out before the house services are ready for operation. The system creates a precedent in that it is the only township-owned, independent water system in the province. The official turning on of the water is to be announced soon.

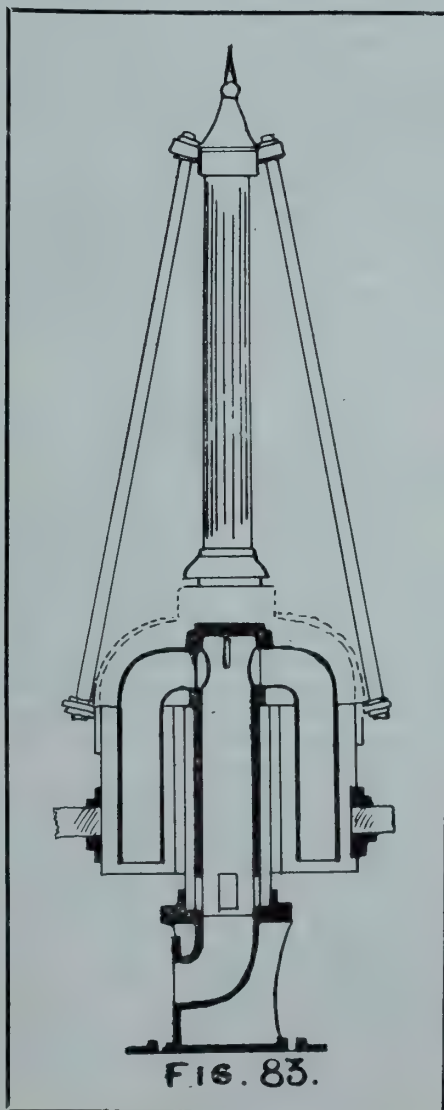


FIG. 83.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Sydney, N. S.—Isaac Grenwell has recently assumed the management of the stove and tinware business formerly carried on by his father, J. W. Grenwell in Sydney, N.S.

OBITUARY

Cookshire, Que.—Louis D. Gauthier, of Gauthier & Co., plumbers, is dead.

PLUMBER IS BURNED

Kingston, Ont.—James Devine, member of the plumbing firm of Hall & Devine, Brockville, was severely burned about the face, neck and right hand while repairing a leaky gas pipe.

NEWS OF MONCTON, N.B., PLUMBING AND HEATING INTERESTS

Moncton, N. B.—Messrs. Duffy and McCarthy are finishing up on the last of 26 houses in which they have installed the plumbing. These houses were built for the Gov't. Housing Board.

Edgar F. LeBlanc who has just finished installing a Hot Water Heating System for C. W. McLeod, Springhill, N.S., is working on a contract of plumbing and heating for the Commercial Hotel, Bathurst, N. B.

H. M. Wilson buyer for the plumbing store of Summer C., Ltd., was recently married to Miss Bessie Drischall of this city. Mr. and Mrs. Wilson spent their honeymoon in Montreal and other upper Canadian cities. Mr. Wilson's associates in the company presented them with a large case of table silver.

4,236 LONDON HOMES ARE WITHOUT BATHTUBS

London, Ont.—The ancient and honorable order of the Saturday night bath is still conferred in 4,236 London homes by means of the old-fashioned wooden or tin tubs that held sway in the days before plumbing became general and not a luxury of the rich. Statistics compiled by civic departments dealing with plumbing regulations and water services show that 4,236 London houses have not yet acquired bathtubs.

In these homes the old-fashioned Saturday night bath is a function which varies not one whit from the baths of elder years. But the tide of progress continues to overwhelm old landmarks and the porcelain bath is replacing the tub at the rate of hundreds each year.

MOVES TO NEW PREMISES

Toronto.—W. Wilkinson who has carried on a plumbing business at the corner of Danforth and Greenwood Ave. will shortly move to his new store at Stop 18 where he will carry on the business of plumbing. He will also handle stoves and ranges.

45 PLUMBERS MAY DIVIDE \$1,000,000 OF WORK

Proposed, cutting off of licenses to Toronto city plumbers for York township means that 45 master plumbers will divide nearly one million dollars worth of contracts in the township next year. At present 45 townships and 120 city plumbers hold township licenses.

In the first nine months of this year building permits to the value of \$6,105,850 were issued. It is thought that some city plumbers may try to overcome the boycott by taking up residence in the township.

York township has a population of 54,000, and building is going ahead rapidly. So far this year 2,705 permits have been issued. Building Inspector Dever predicts building operations totalling about \$750,000 will be carried out this winter.

STEAM HEAT SCHEME AT CHATHAM FAILS

Chatham.—That there will be no heat from a central steam heating plant in Chatham this winter is the announcement made after a futile attempt on the part of citizens to secure sufficient contracts to warrant the Chatham Steam Heating Company opening up their plant on King Street. As a result the merchants on King Street and the balance of the business section are now digging up old stoves and furnaces in the hopes of providing sufficient heat for the coming winter.

The directors of the company, when appealed to about two weeks ago, stated that they would require a certain amount of money guaranteed through contracts before they could start up the plant. Efforts on the part of the citizens' committee which was formed at a meeting in the chamber of commerce brought out contracts which totalled around \$23,000, but this amount was not enough. Yesterday it was stated that two more contracts would cover the amount required, but these could not be secured; hence the project fell through.

WESTERN ONTARIO NEWS

Thomas Jacklin, Blenheim, Ont., wants prices on hot air heating plumbing and electrical work for new \$5,000 bungalow.

L. E. Carrothers, Board of Education London, Ont., will prepare plans for a new four-roomed school at Ealing to cost \$50,000.

Durden and Staright of Leamington, Ont., have purchased the plumbing and heating business of A. E. Law. Mr. Law will continue his electrical business.

The council of Kingsville, Ont., has awarded the contract of installation of pressure filters at the waterworks to the Norwood Engineering Co., of Florence, Mass.

S. C. Bartlett, St. Marys, Ont., wants prices on heating, plumbing and electrical work in connection with new \$7,000 dwelling.

Charles B. West, sanitary engineer, London, Ont., has the sympathy of a wide circle of friends in the trade in the death of his daughter, May Victoria, aged 25, which occurred on October 26.

Lawrence & Wakefield of Dresden, Ont., are preparing plans for new flour mills to cost \$100,000 and want prices on heating, plumbing and electrical equipment.

Andrew Sanderson, 71 Evergreen Avenue, London, Ont., wants prices on heating, plumbing and electrical equipment.

Ray Lawson, c/o Lawson & Jones, Clarence St., London, wants prices on heating system for small greenhouse.

Harold White, 514 Dundas St. London, is preparing plans for \$8,000 bungalow and wants prices on heating, plumbing and electrical work.

A. H. Smyth, Strathroy, Ont., wants prices on heating, plumbing and electrical work for new \$7,500 residence.

A new sewage disposal system to cost \$300,000 is to be built at London, Ont. Plans are now under way by City Engineer, Brazier, and work will be commenced as early as possible in the spring.

R. H. Smith, 193 Wharncliffe Road South, London, Ont., wants prices on heating, plumbing and electrical work in connection with new \$10,000 store with dwelling above.

The ratepayers of Petrolia, Ont., are to vote on a bylaw, November 30 to provide \$25,000 for a new reservoir of 750,000 gallons capacity and \$20,000 for the electrification of the present waterworks pumps.

Joseph McLean of Forest, Ont., wants prices on heating and plumbing for new \$5,000 residence.

Contracts Awarded

Moncton, N. B.—J. W. McCarthy has plumbing and heating contracts for Orange Hall.

Moncton, N.B.—Thos. Johnson Co., has plumbing contract and Duffy and McCarthy has heating contract for Knights of Pythias Hall.

Goderich, Ont.—General contract for construction of chlorinating and filtration plant for town is awarded to Canadian Engineering & Contracting Co., 72 James St., N., Hamilton.

Halifax, N. S.—General contract for erection of pumping station for City is awarded to Standard Construction Co., Metropole Bldg.

Hamilton, Ont.—General contract for repairs to reservoir costing \$14,664 for City is awarded to Russell Construction Co., Ltd., Harbor Cmsn. Bldg., Toronto.

Hamilton, Ont.—Additional contracts for addition to school costing \$60,000 for Separate School Bd. are: plumbing and heating, Robert Fitzsimmons Co., Ltd., 21 Rebecca St.

Kingston, Ont.—Heating contract for heating plant costing \$125,000 for Queen's University is awarded to McKelvey & Birch, Ltd., 69 Brock St.

Montreal, Que.—General contract for addition and alterations to jail for Prov. Govt., Dept. Pub. Works, is awarded to O. Archambault, 610 Park Lafontaine. Additional contracts are: Plumbing and heating, Conroy Bros., 291 Centre St.

Hamilton, Ont.—Additional contracts for erection of Nurses' Home costing \$300,000 for Hospital Bd. are: plumbing and heating, R. Fitzsimmons, 21 Rebecca St.

London, Ont.—Plumbing and heating contracts for remodelment of residence costing \$20,000 for W. E. Robinson, 264 St. James St., are awarded to T. Partidge, 430 Wellington St.

London, Ont.—Plumbing and heating contracts for remodelling residence into apts. for Mrs. Bicknell, 114 Dundas St., are awarded to Eggett & Co., 336 Ridout St.

Montreal, Que.—Additional contracts for apt. house for John Dominique, Grey and Sherbrooke Sts., are: roofing, plumbing and heating, Lavigne & Menard, 2483 St. Lawrence Blvd.

Ottawa, Ont.—Plumbing and heating contracts for residence costing \$13,000 for L. E. Stanley, 109 Rideau St., are awarded to H. Tapp, 36 Armstrong St.

London, Ont.—Plumbing and heating contracts for warehouse costing \$55,000 for Crane Ltd., 88 Teraulay St., Toronto, are awarded to Eggett & Co., 336 Ridout St.

Toronto, Ont.—Contracts for erection of addition to Rose Ave. School for Bd. of Education are: plumbing and heating at \$32,985, Mechanical Trades Ltd., 54 University Ave.

Toronto, Ont.—Contracts for erection of addition to Malvern High School for Bd. of Education are: plumbing and heating, \$19,400, Bennett & Wright, 72 Queen St. E.

Westmount, Que.—Plumbing, heating and ventilating contracts for synagogue for Congregation Shaar Hashomayim are awarded to Garte Co., 28 Craig St. W.

Montreal, —Plumbing contract for apt. house costing \$250,000 for Westmount Industrial Corp., is placed with Thos. O'Connell, 183 Ottawa St.

Montreal, —Plumbing and heating contracts for residence costing \$8,000 for J. A. Desautels, 2001 De Laroche St., are awarded to Mr. Archambault, Desery St.

Windsor, Ont.—Additional contracts for Prince Edward Hotel costing \$1,000,000 for Border Cities Hotel Co., are: Ventilating, heating and plumbing, Drake-Avery Co., 103 John St., Hamilton.

Point Grey, B.C.—Plumbing and heating contracts for residence costing \$8,000 for Col. Robert Williams, 448 Seymour St., Vancouver, are awarded to Peter Murie, 617 15th Ave. E., South Vancouver.

Quebec, Que.—Plumbing and heating contracts for residence costing \$10,200 for Laetare Roy, 42 Louis St., are awarded to Nap. Le Page, Levis, Que.

Sydney, N.S.—Plumbing and heating contracts for residence costing \$8,500 for Richard Logue, Charlotte St., are awarded to Hagen & Co., Ltd., 452 George St.

Three Rivers, Que.—Plumbing and heating contracts for two stores and flats costing \$22,000 for Martineau & Frere, Ste. Cecile St., are awarded to Nobert & Dugre and Treffe Hamelin.

WATERWORKS AND SEWERAGE

Montreal, Que.—Construction of sewerage costing \$14,110 on St. John St. is planned by City Council.

Ottawa, Ont.—City Council plan construction of watermains at cost of \$165,000 in Westboro district.

Plans are prepared for sewerage scheme to cost \$327,000 connected with Westboro-Ottawa annexation for City. A. F. Maccallum, Commer. of Works.

Saanich, B. C.—Saanich Council will proceed with construction of waterworks costing \$150,000 by day labor. Hector Cowper, clerk.

Three Rivers, Que.—City Council plans construction of extensions to sewers and waterworks at estimated cost of \$30,000 Z. Lambert, Engr.

WATER SUPPLY IMPROVEMENTS FOR BAGOTVILLE, QUE.

One hundred thousand dollars are being spent for extensions and improvements on the water supply system of the town of Bagotville, Quebec. The pre-

sent water-works have been in operation since 1913 and are owned by the municipality. Water was pumped from River a Mars directly into mains and was distributed through over two miles of 6 in. to 2 in. pipes. The pumping station, at the intake was operated by water wheels working under a head of 8 to 10 feet and developing 25 to 40 h.p. The turbine required about 80 times the amount of water pumped into the mains and it was found, that, at low water stage, the supply was insufficient, the pressure obtained by the centrifugal pump being only around 50 lbs. per square inch.

Cast iron pipes of 16 in. to 6 in. diameter, supplied by the Canada Iron Foundries, Limited, were brought at a cost of \$60,000.00. The general contract for laying the pipes was awarded to Messrs. Emile & Alfred Gagnon of Jonquieres.

The pipe line is being laid for a certain distance by the side of a road but, at the upper end, the pipe crosses the river under water and the trench is made in the bush on a length of over one and a half miles. The trenching was done at a cost of 15 to 40 cents per running foot depending on the nature of the excavation, which prices, of course, do not apply to places where blasting was required. At the upper end, of course, gravel and boulders were found and one of the main difficulties there was to secure the proper material to bury the pipe with.

An ideal location has been found for the new intake. It is being excavated in solid rock on top of little falls which drop about 10 feet and where Nature has provided a regular dam and forebay, so that no such works need to be made. At the lower end, the new pipe line will be connected to the present 6 in. mains.

SEWAGE PLANT TO COST OVER \$300,000

Peterboro, Ont.—That the new Imhoff sewage disposal plant will cost \$320,100 was the figure submitted by City Engineer Parsons to the City Council and the mayor is urging as early a start as practicable to be made on this work to provide jobs for the city's unemployed.

The engineer has prepared a detailed report of the whole system as planned by him, which will take care of 6,000,000 imperial gallons of sewage per day, as against the present flow of 3,500,000 gallons. His estimated cost of this system, including land, is \$320,100.

Ald. Whitehouse and Hay moved that the plans and specifications of the Engineer for his system, including a two-storey pumping station, tanks, pipe main and other work to be sent to the Provincial Board of Health for approval, and that a deputation from the Council accompany the plans, in furtherance of their endorsement for proceeding with the plant's construction. This carried.

Hespeler Manufacturers Hold Exhibition

Successful Event Arranged to Educate District People to Lines Manufactured Locally—Plumbing Firms Take Part

(By Special Representative of Sanitary Engineer)

THE manufacturers of Hespeler, Ont., recently decided that the citizens of Hespeler and surrounding districts were not sufficiently acquainted with the products manufactured in that town, and put on, therefore, a Made in Hespeler Exhibition. The following firms had exhibits:

Canadian Machinery Corp., wood-working exhibit; A. B. Jardine & Co., blacksmith machinery, boiler makers and pipe fitters' tools; Stamped & Enamelware, Ltd., had a fine exhibit of all lines of enamel cooking utensils as well as enameled portions of modern gas and electric stoves; R. Forbes Co., Ltd., woolen textile; Hespeler Wood Specialty Co., Ltd., (this firm has just started to manufacture a new line of hockey sticks and their success so far has been very gratifying to the promoters); Hall Zryd Foundry Co., had an excellent display of Pilot Stoves and Pipeless Heaters. This display was one of the largest and certainly a credit to the Hall Zryd Co.; W. A. Kribs showing a line of Kribs Washers and Factory Trucks; Bert. Stewart Co., Ltd., builders' hardware; A.

Lardner & Sons, a line of cast metal top.

The whole exhibit was certainly a credit to a town of 3,500 inhabitants, and the promoters of the affair, especially Oscar Zryd of the Hall, Zryd Co., who stated that literally thousands of people were attracted to the Exhibition from the surrounding towns in the Grand River Valley.

There is some talk now of the Hespeler manufacturers taking space in the Canadian National Exhibition, as a Hespeler section.

This exhibition proved such a success that the directors decided to prolong it for three days longer than originally planned.

It is hoped next year that this exhibition may be made more of an attraction so as to attract the western wholesale buyers as well as the local people.

It was organized this year for the purpose of creating a community spirit in Hespeler, but the directors now believe that if this thing was properly organized and advertised far enough ahead that they could do considerable amount of business.

ELECTROLYSIS

Hamilton, Ont.—Enactment of Federal legislation that would check and control electrolysis was urged at the third annual meeting of the Natural Gas & Petroleum Association of Canada by D. A. Coste of Niagara Falls.

Mr. Coste said that one of the most pernicious influences public utilities like gas concerns, sewer and waterworks departments had to combat was electrolysis. It was an influence which in almost all fair-sized cities was playing hob with underground systems where metal was employed. In Niagara Falls the water mains were found to be losing from 15 to 25 per cent. of their normal pressure through leaks caused by electrolysis. Mr. Coste said that in Germany, France, Great Britain and other countries there were Federal laws in force that checked the spread of this agent, and placed the blame on those responsible.

He knew of no business men whose investments were so much the prey of electrolysis as were gas men. He therefore urged action. A petition will be forwarded to the Federal Government.

FILTERED WATER FOR PETERBORO

Peterboro, Ont.—Completion of the filtration plant, and the 2,000,000 gallon water reservoir in the old Carnegie property above the pumping house proceeds apace and according to R. L. Dobbin, waterworks superintendent, the plant is 90 per cent., and the reservoir 85 per cent. completed. It is confidently expected that the first filtered water will go into the mains on December 1st.

SMALL SET OF BOOKS

(Continued from page 21)

ments made for the proprietor's individual account, or purchases of equipment of various kinds

The work on these sheets should be proved by the same method as previously indicated, that is, the totals of both Debit Columns should equal the total of both Credit columns.

Reconciling Bank Account

At the end of the month, after all footings have been made, and the month's work proved as indicated in the preceding paragraph, a statement should be made on last "Cash Receipts" sheet showing the Cash in Bank, and also showing that it is correct according to the Bank Book Statement. The following is a simple form of Statement—

Balance beginning of month	
(from previous month's statement)	\$ 250.00
Deposits (total of "Cash Received" or "Deposited in Bank" column)	1 250.25
	<hr/>
	\$1,500.25
Checks drawn (Total of "Amount Check" column)	963.75
	<hr/>
Cash in Bank end of month	\$ 536.50

After putting this much of the statement on the book, take your cancelled checks, and check the amount of each check as shown on the list returned by

the bank. Next sort the checks in numerical order, the lowest number on top. Compare the amount of each check with the amount entered in the "Amount Check" column, putting a check mark in red ink to the right of the amount entered on the "Cash Disbursements" sheet. In checking off the checks, use the previous month's reconciliation for all checks entered prior to the current month. Next, draw off a list of all amounts that are not checked in red ink. These are the "checks out," that is, the ones that have not been paid by the bank. Continue your statement now as follows: (Of course, the figures used here are for example only. Your figures will be the actual ones shown by your records).

Bank Balance (from Bank Book or Statement)	\$636.25
Less checks out—	
No. 123	\$50.00
No. 126	25.00
No. 129	10.00
No. 135	14.75
	<hr/>
	99.75
Cash in Bank as shown above	\$536.50

This article completes our description of the books of account necessary in this simple booking system. Our next article will tell how to use a General Ledger in connection with them, and how to make up a Monthly Trial Balance or report without using a Ledger.

New Plumbing Goods

WEST SMOKE ABATOR SAVES FUEL AND HEAT

With the combined object of saving fuel and abating the smoke nuisance, the West Perfected Smoke Abator has now been placed on the Canadian market. This product is a "carburator" which mixes the hot air—containing oxygen—with the gases over the fire bed of stoves, furnaces, hot-water heaters, hot-air furnaces, steam heating or power plants. The West Smoke Abator is attached to the fire door, and is entirely out of the way while firing. The manufacturers claim that it increases heat 25 to 50 per cent; burns the smoke; reduces ash soot; and also lessens labor and fuel bills. The West Smoke Abator is being marketed by the Canadian Combustion Co., Ltd., Toronto, Ont.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

CURRENT market developments indicate that present prices are more stable, with business trends registering a more healthy tone generally. The proportion of activity in some lines is now seasonal, owing to many buildings having reached the stage where sanitary and heating equipment is required. While these conditions are mainly considered of a temporary nature, yet it is noticeable that prevailing price changes are far less numerous than has been the case during recent months.

Price revisions to a lower basis are announced on certain lines of compression goods, these changes chiefly affecting both the round way and flat way standard stop and waste cocks; also the Webber

line of gate valves. Dominion wipers, both white and colored cotton, have also been reduced 2 cents per lb. There has appeared another decline in quotations on some coke tin plates. Other primary market lines generally remain unchanged, as regards price, with a firmer undertone in boiler tubes, eavestrough, and conductor pipe, corrugated sheets, radiators and boilers, and similar goods.

Range boilers are again entering the limelight; the recent new higher list prices not being well maintained on the 30-gallon size, owing to the approach of the quiet period. It is recorded that some dealers are quoting easier levels with the object of reducing stocks prior to the winter season. The steel markets are a little quieter; with ingot metals generally failing to retain the upward trends.

MONTREAL MARKETS

MONTREAL, October 31.—Although fewer actual price changes are recorded in the markets, there is much of interest to the plumbing and steam-fitting trade. Dominion wipers and certain lines of compression goods are featured in revisions. Wipers show a reduction of 2 cents on both colored and white; while flatway and roundway stop waste cocks are reduced through a change in discounts. The better tone in the steel industry continues to hold many staple lines on a steadier basis, where formerly easier prices were continually being reported. Sheets, both black and galvanized tinplate; Canada plate; bar iron and steel; corrugated sheets; eavestrough, and conductor pipe; boiler tubes; boilers, and radiators, are all recorded with a firmer tone. Owing to the strength of metals on the primary markets, lead products are also much firmer. Copper goods are stronger in tone, owing to slight recovery from the re-action of copper during the past week. Range boilers are again unsettled, but not to the extent that prevailed a few weeks ago. Some jobbing houses, which have a surplus stock on hand, are offering a price concession in the hope of reducing their supplies before winter sets in. Enamelled ware and closets remain at former quotations. Ingot metals are somewhat improved in tone, although changes in quotations are very slight.

STEADY TO FIRM SITUATION ON BAR IRON

Montreal.

The market tone of bar iron and steel continues firmer, but not to the extent that is evident in sheet products. However, it is generally conceded that the next change in quotations will depend on future developments at the mills. Although no advance has yet been recorded locally, the much better feeling still exists and if there is any marked increase in steel orders during the next few weeks, there is every likelihood of advanced prices. Business locally shows a seasonable improvement

with more enquiries, but large orders are not yet in evidence. Present current prices are as follows.

IRON & STEEL—

Common bar iron, 100 lbs.	3 00	3 25
Refined iron	4 00	4 90
Iron finished machinery steel	3 45	
Mild steel	3 00	3 40
Single reeled machinery steel	5 00	5 25
Band steel	3 00	3 40
Spring steel	6 00	
Sleighshoe steel	3 00	3 40
Tire steel	3 00	3 60
Toe calk steel	4 00	4 20
Harrow tooth steel	3 55	
Mining teeth steel per lb.	0 22	
Black Diamond tool and cast steel	0 22	

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

A BETTER TONE TO CORRUGATED SHEETS

Montreal.

The undertone of the market for corrugated sheets is somewhat firmer, owing to the improvement in the plain sheet situation. There is no present indications of any revision of prices, this probably because of the quiet season now approaching for these products. Sales are only fair, the season recognized as being fairly well over. Following are current prices:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	\$ 7 00
No. 26 gauge	7 50
No. 24 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50

Less 7½%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

RANGE BOILERS RATHER UNSETTLED AGAIN

Montreal.

The undertone of the market for boilers continues firm, as do most other sheet products. However, locally there is again a rather unsettled feeling among the trade. The season is now advancing and jobbers are finding a slight slackening in sales. Being stock-ed fairly heavy they are now anxious to dispose of any surplus, and are offering a reduced figure. The older quotation of \$8.75 is again found among some dealers. Following is the revised list of a few weeks ago:

RANGE BOILERS —	Std.	Ex.	Heavy
30 gallon	9 25	11 75	
35 gallon	12 00	14 50	
40 gallon	14 50	17 00	
52 gallon	21 00	26 00	
66 gallon	30 00	36 00	
82 gallon	37 50	50 00	
100 gallon	48 00	58 00	
120 gallon	57 00	67 00	

COPPER IS AGAIN IMPROVED IN TONE

Montreal.

Copper on the primary markets has again improved, recovering from the slight re-action last week. The advance now recorded is slight, but fully satisfactory as dealers are hoping the gain will not be of a rapid nature. Prices on sheets, rods and tubing are holding unchanged, with the tendency again of an upward nature. Following are existing quotations:

BRASS—	Base
Sheets	0 25
Rods, ½ to 1 inch, round	0 23
Tubing, seamless	0 32
COPPER—	
Rods, ½ to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier, lb.	0 33
Plain tinned, 16 oz. and heavier, lb.	0 38
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34

SMALLER SALE OF EAVES-TROUGH

Montreal.

The recent improvement in steel products generally, which was accompanied by higher prices on certain products, has reflected a somewhat firmer tone in the market for eavestrough and conductor pipe. There is no indication locally of higher prices at present, probably because of the off-season, but it is generally believed the next revision in prices will be in the nature of an advance. Activity in these products is confined to small orders, dealers no doubt finding their customers still require troughing done before the winter commences. Following are list prices and discounts:

EAVESTROUGH—					
O. G. Square Bead—Per 100 ft.					
8 inch	10 inch	12 inch	15 inch	18 inch	
\$15 90	\$17 70	\$21 20	\$28 80	\$36 80	
O. G. Round, and Half Round—Per 100 ft.					
8 inch	10 inch	12 inch	15 inch	18 inch	
\$16 90	\$18 70	\$22 20	\$29 80	\$37 80	
Discount 60/10 per cent. off list.					
CONDUCTOR PIPE—Per 100 ft.					
2 inch	3 inch	4 inch	5 inch	5 inch	
\$18 40	\$22 30	\$29 60	\$40 00	\$49 00	
Discount 60/10 per cent. off list.					
CONDUCTOR ELBOWS—					
Plain round or round corrugated.					
2 inch, list				5 25	
3 inch, list				6 00	
4 inch, list				10 50	
5 inch, list				24 00	
6 inch, list				29 00	
Less 55 per cent					

COTTON WIPERS ARE LOWERED IN PRICE

Montreal.

While cotton wastes have been much firmer in tone, wipers did not follow, and these are now quoted at a reduction. The white wipers have been reduced from 22 cents to 20 cents; colored from 16 to 14 cents. Wastes and wool packing are remaining on a steady market, but the firmer tone to the market is not as strong as was evident a few weeks ago. Following are prevailing prices:

COTTON WASTE — Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLCR, 15c; X Empire, 14c; X Press, 13c; 6 X Special, 12c. Colored, Fancy, 14c; Lion, 12½c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 20c, colored cotton, 14c. Above lines subject to trade discount for quantity.

LEAD PRODUCTS ARE FIRM BUT UNCHANGED

Montreal.

Following the tendency of the metals used in their manufacture on the primary markets, lead and zinc products are somewhat firmer in tone. The finished products have for some time been selling at what was considered bottom prices, and it is now felt that the continuance of the improvement of the ingots will very shortly reflect on the market for these products. This would especially apply to solders and zinc sheets, these being somewhat stronger than the rest. Business is reported as only fair, but not unusually so as the season is advancing to the usual dull period. Following are prevailing prices:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 10½
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Wo., wiping, lb.	0 21½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

NO CHANGE IN FITTINGS

Montreal.

There is practically no change to report on pipe fittings. Prices hold at revisions of a few weeks ago and sales are fair, and of a sorting character. Following are prices and discounts:

PIPE FITTINGS—		Per cent.
Cast iron fittings	.....	.25
Bushings, cast	.....	27½
Bushings, malleable	.....	25
Flanges	.....	37½
Plugs	.....	27½
Flange unions	.....	22½
Malleable unions	.....	42½
Dart unions, black	.....	29
Do., galvanized	.....	8
Nipples, ½ to 4" close and short	.....	50
Do., long	.....	60
Do., 4½ to 8" close and short	.....	40
Do., long	.....	50
Couplings, 4" and under	.....	30
Do., 4½" and larger	.....	10
Pound Goods—		Blk. Galv.
Class A	.....	0 53 0 65
Class B	.....	0 21½ 0 28¼
Class C	.....	0 14 0 21½

SHEETS STILL HOLD IN PRICE

Montreal.

It was anticipated that a revision to higher levels in sheet quotations would probably have appeared before now, but this week still finds former prices holding. The tone in the primary steel market continues firm; especially marked in sheet products, and a change in local prices at any time would cause little surprise. Sheet distributors state that while present local stocks hold out, prices will in all probability remain unchanged, but immediately they are forced to purchase at the higher mill prices, some increase is likely. Stocks have been comparatively small for some time, but the demand has been such that they are found ample to meet all the requirements up to the present. There is an improvement continuing in sheet orders

and the better tone of the market remains. Further developments at the mills will be watched very carefully by dealers in anticipating their new selling prices.

English sheets and Canada plates also have a firmer outlook but are held unchanged, as in the case of American products. Local distributors state no change will be made in quotations until present stocks are exhausted. Local current quotations are as follows:

BLACK SHEETS—

10 gauge	4 30	4 65
12 gauge	4 40	4 75
14 gauge	4 50	4 85
16 gauge	4 50	4 95
18-20 gauge	4 80	5 20
26 gauge	4 95	5 40
22-24 gauge	4 90	5 35
28 gauge	5 00	5 50

GALVANIZED SHEETS—

10½ ounce	6 85	7 75
28 gauge	6 45	7 35
26 gauge	6 15	7 00
22-24 gauge	5 95	6 75
20 gauge	5 80	6 60
18 gauge	5 80	6 50
16 gauge	5 70	6 50
14 gauge	5 65	6 50
12 gauge	5 40	6 50
10 gauge	5 30	6 50

English Standard—	Queen's Fleur-de-lis
28 gauge	8 50 7 75
26 gauge	8 25 7 50
24 gauge	7 65 7 10
22 gauge	7 30 6 65
18-20 gauge	6 60 6 50

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.	
18 x 24 x 52s	5 80
18 x 24 x 60s	6 00
18 x 24 x 75s	6 30

WELSH CANADA PLATES—

Polished.	
18 x 24 x 52s	8 25
18 x 24 x 60s	8 50

BRIGHT TIN PLATES

20 x 28 x 100 lb. bases	17 50
20 x 28 IC., 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00

NO FURTHER CHANGE IN CLOSET OUTFITS

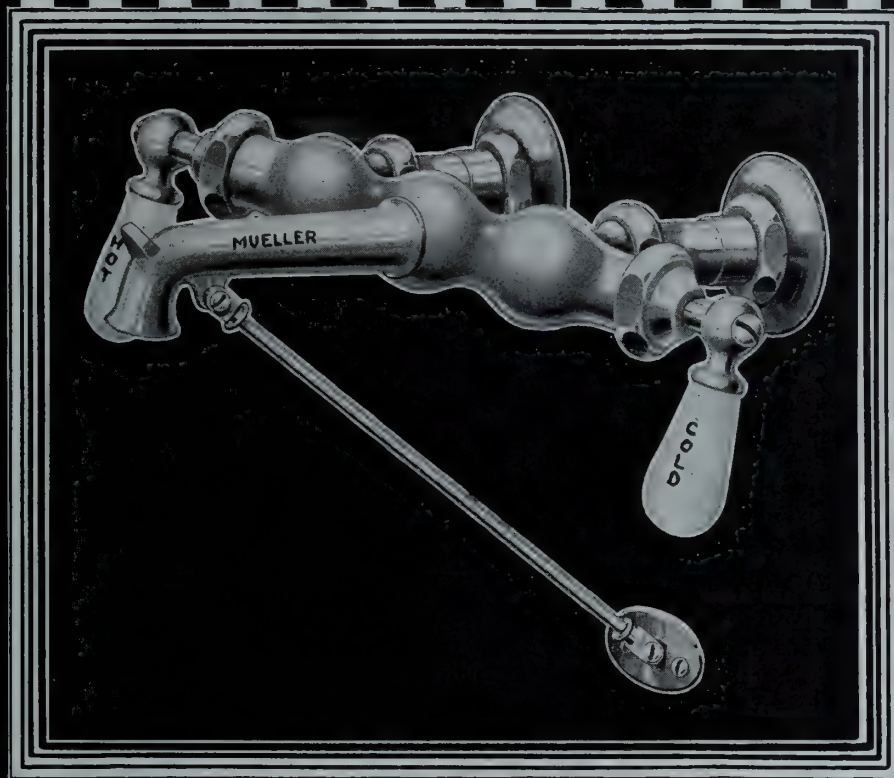
Montreal.

No further change is made in closet outfit quotations since the revision of three weeks ago. Sales are fair, building construction still demanding supplies. General dealer business is said to have slackened somewhat in the past few weeks. Following are prevailing prices:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	9 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

(Continued on Page 32.)



MUELLER

Slop Sink Cock with Pail Brace

For factories, hotels and all public buildings this durable and serviceable fixture, A-2351, is highly recommended.

Made on the patented Rapidac principle, with detachable shank and adjustable flange, fully nickel plated and furnished with brass index lever handles, if preferred.

The supremacy of *MUELLER* Brass Goods is due to the fact that each article is expressly designed for the work it is to do and is then manufactured with the utmost care and precision to insure perfect performance and enduring service.

Write for catalogue and prices. Mail orders given prompt attention.

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Water, Plumbing and Gas Brass Goods and Tools.

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Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

MONTREAL MARKETS

(Continued from Page 30.)

BUILDING CONSTRUCTION DEMANDS BOILERS AND RADIATORS

Montreal.

Both radiators and boilers hold at previous discounts with little change either in the movement or market tendencies to report. Being of the heavier class of iron and steel products there is a slightly firmer tone in the market, but no indication at present of a change in prices. Owing to building construction requiring supplies, sales continue on a fair scale. Following are prevailing prices and discounts:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 10 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

WROUGHT PIPE SHOWS NO CHANGE

Montreal.

Wrought iron and steel pipe prices are holding at list No. 53. Some are of the opinion that the market reached bottom when the revision of last month was announced. Since that date it will be noted that other iron and steel products have improved, and price advances made in some quarters. The tone of the market has firmed slightly with chances of a continued downward trend more remote. A fair seasonable amount of business is reported. Following is list No. 53:

To Take Effect Sept. 22, 1921.
Standard Butt-weld Pipe S-C
Per 100 feet.

Price List No. 53.	September 22nd, 1921.			
	Steel.	Galv.	Black.	Wrot Iron.
	Black.	Galv.	Black.	Galv.
1/8 in.	\$ 6.00	\$ 8.00	\$	\$
1/4 in.	4.20	6.30	7.20	9.30
3/8 in.	4.20	6.30	7.20	9.30
1/2 in.	5.36	6.97	7.48	9.10
3/4 in.	6.44	8.28	9.09	10.93
1 in.	9.18	11.90	12.92	15.64
1 1/4 in.	12.42	16.10	17.48	21.16
1 1/2 in.	14.85	19.25	20.90	25.30
2 in.	19.98	25.90	28.12	34.04
2 1/2 in.	31.59	40.95	.....	.....
3 in.	41.31	53.55	.....	.....
3 1/2 in.	53.36	68.08	.....	.....
4 in.	63.22	80.66	.....	.....

Standard Lapweld Pipe S-C
Per 100 feet.

2 in.	\$ 23.68	\$ 29.60	\$ 31.82	\$ 37.74
2 1/2 in.	35.10	44.46	47.97	57.33
3 in.	45.90	58.14	62.73	74.97
3 1/2 in.	54.28	70.84	74.52	91.08
4 in.	54.31	83.93	88.29	107.91
4 1/2 in.	72.39	92.71	1.04	1.24
5 in.	84.36	108.04	1.21	1.45
6 in.	1.09	1.40	1.57	1.88
7 in.	1.45	1.88	2.02	2.45
8 in.	1.53	1.98	2.13	2.58
8 1/2 in.	1.76	2.28	2.45	2.97
9 in.	2.14	2.76	2.97	3.59
10 in.	1.98	2.56	2.75	3.33
10 1/2 in.	2.56	3.30	3.54	4.28

SOME BRASS GOODS LOWER

Montreal.

With current sales on the various lines of valves and bibbs continuing with little change, quotations on both flatway and roundway stop and waste cocks are lowered through a change in discounts. Flatway are now less 54 per cent; roundway selling at 46 per cent off. Other lines are holding unchanged. There is a little better undertone to the market owing to improvement in both brass and copper on the primary centres. While this improvement is not yet extensive enough to reflect to any degree on compression goods, it serves to relieve the undertone from the continued easier tendency that has prevailed for some time past. Present discounts on the different lines are as follows:

COMPRESSION WORK—

Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	64%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	10%
Radiator valves, standard	58%
Do., removable disc	52%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%

ENAMELLED WARE FAIRLY ACTIVE

Montreal.

Activity in enamelled ware holds fairly well for this season of the year. Buildings under construction are in many cases now at the stage where they require supplies. The discount remains at 20-10 per cent off list prices, and a somewhat better feeling now exists, although some jobbers are anxious to rid themselves of surplus stock and are offering a slight price concession for quantity buying. This unsettled state of the market locally is again being censured by some local dealers, who claim a new selling method must be adapted by all concerned in disposing of enamelled ware before any market improvement can be looked for. Following are list prices and discounts:

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$ 7 50 \$ 7 40 \$ 7 30
18 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4 1/2, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5 1/2 feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim, F241 or P4345	12 60
Less 20 and 10 per cent.	

LIMITED AMOUNT OF BOILER TUBE BUSINESS

Montreal.

Quotations on the various sizes of boiler tubes are holding with only a limited amount of business recorded. The improvement in iron and steel products generally, has given reason to believe that tube prices have reached the bottom of the downward trend. Owing to

lack of larger construction work, sales are still confined to repair work.

BOILER TUBES—

	Seamless	Lapweld
1 inch	24 70	.....
1 1/4 inch	24 50	.....
1 1/2 inch	24 00	.....
1 3/4 inch	26 00	27 00
2 inch	24 50	22 30
2 1/4 inch	27 75	25 50
2 3/4 inch	35 00	26 75
3 inch	42 60	34 00
3 1/2 inch	54 50	39 00
4 inch	75 00	49 50

BETTER FEELING IN SCRAP METALS

Montreal.

Scrap consumers continue to enquire more freely, but the demand as yet, has failed to show any marked improvement. With quotations on the various lines, especially iron and steel waste, now at a very low level, dealers are hoping the improvement in these markets will still reflect on scrap before winter sets in. The better feeling now in the market is encouraging after the prolonged period of depression that has existed in scrap and waste materials. Following are nominal quotations:

Automobile tires	0 75
Rubber shoes	0 02 1/2
Yellow brass	0 05
Red brass	0 08 1/2
Light brass	0 04
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02 1/2
Light copper	0 07 1/2
Heavy copper	0 10 1/2
Wrought iron, R.Rd., No. 1 per gr. ton.	10 50
Malleable scrap (ton)	10 50
Pipe scrap (ton)	7 00
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	20 00

INGOT METALS ARE AGAIN MORE SATISFACTORY

Montreal.

The ingot metal markets are more or less marking time with no special changes in prices, and as far as the American markets are concerned, there is little alteration to record. The situation generally, however, is satisfactory, and there is no desire to see prices advance too rapidly.

TIN—Although the changes are not very great, the tendency generally is slightly upward, and the strength of Sterling exchange assists in this direction. It is not likely that there will be any pronounced movements as yet, but there is little doubt but that the trend will be gradually upward. Local price 35 1/2 cents.

COPPER—The slight reaction in New York is over for the present, and prices are again somewhat higher. Export business is however a little less in volume, and will be until the exchange situation in Germany becomes more stable. The situation generally is quite satisfactory, producers not being inclined to cut prices. Local market is steady at 17 1/4 cents for electro, 17 cents for casting.

LEAD—London market is quite firm, but there is little change at East St. Louis. The situation is quiet but firm,

(Continued on Page 34.)

M

MADE
IN CANADA

**MALLEABLE
AND CAST IRON
PIPE
FITTINGS**

Annual Capacity
6000 Tons

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

**RECESSED
DRAINAGE
FITTINGS**

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

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Montreal and Toronto—From Head Office Guelph, Ont.

MONTREAL MARKETS

Continued from Page 32.)

with a fair demand and supplies generally adequate. Local price unchanged at 6½ cents.

SPELTER—Both London and East St. Louis are slightly easier, but the reduction is not very great, and the situation in Europe is quite firm. A further change is looked for when the pres-

ent reaction is through. Unchanged quotation is 7¾ cents.

ANTIMONY—The market for antimony is easier again in New York, the recent advance having petered out. Local prices are also slightly lower in sympathy. Chinese is quoted at 7 cents, high grade English at 8 cents.

ALUMINUM—Aluminum apparently refuses to cause interest in the market and remains dull and quiet at 28 cents.

TORONTO MARKETS

TORONTO, October 31.—With only a moderate number of price revisions occurring on the current markets, quotations on plumbing and steam-fitting supplies have now developed a more stable attitude. This condition, although only considered of a temporary nature, is significant, and is attributed to the recent improvement in the steel industry, with a reflection of this better feeling having spread to many semi-finished and finished materials comprising sanitary and heating lines.

Products embodying price changes are chiefly confined to certain lines of brass goods, and also coke tin plates. The latter show a slight decline in price; while the downward revision in compression goods affects both the round way and flat way standard stop and waste cocks; also the Webber gate valves.

The copper markets have now developed a quiet attitude, with only a moderate proportion of enquiry. The ingot metals generally have failed to retain the recent tone of improvement. There has been no marked increase in the scrap material demand; while the rise in raw cotton prices—which was reflected in quotations on many manufactured cotton goods and also cotton wastes—has now evidently spent itself. Optimistic expressions as to the future outlook in business conditions in general are now more noticeable.

FURTHER PRICE CHANGES ON COMPRESSION GOODS

Toronto.

Further price changes have now developed in the quotations on compression goods. Through the increasing of discounts, the prices on standard flat way stop and waste cocks are brought to a lower level, and a similar revision is made on the round way type of this product. Changed quotations are also noted on Webber gate valves.

With a fair market in compression goods, sales are stated to be of a moderate nature. Current conditions show varying price developments in the efforts to stimulate business generally, and thus reduce stocks prior to the annual inventory period. Prevailing quotations follow:

VALVES —

	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoaks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	10
Globe, angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves	20
J. M. T. valves	20
J. M. T. C.	25
J. M. T. gate valves	25
Gate or straightway	16-10
Jenkins globe	10-10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves	20
Emco, check valves	20
Webber gate valves	25
Emco, Globe valves, ¼" to 2"	30
Emco, Globe valves 2½" to 3"	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
Quick opening No. 3633	43

DECLINE IN PRICES ON COKE TIN PLATES

Toronto.

Reduced quotations are now being given on coke tin plates, the extent of the decline being approximately 5 per cent. This change brings prices on these products to the following levels:

PLATES, CANADA—	
Dull, 60 sheets	Per box 5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
1C, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 11 sheets	19 00
1X, 20 x 28, 56 sheets	12 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
1XX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
1C, 14 x 20, 112 sheets	12 00

FAIR ACTIVITY IN SOIL PIPE AND FITTINGS

Toronto.

Business in soil pipe and fittings is generally quoted as just fair, for this season of the year. However, there has been some improvement recorded during the month of September, over the dull period noted throughout the summer, but this betterment in trade activity was generally looked for during the Fall. Current prices and discounts remain unchanged at the following levels:

SOIL PIPE—	
2 and 3 inch	35 per cent.
4 inch	40 per cent.
5 and 6 inch	40 per cent.
8 inch	Net
FITTINGS—	
2 to 6 inch	50 per cent.
8 inch	Net

SHEET MARKETS STRONG WITH QUOTATIONS FIRM

Toronto.

Activity is still reported on the increase in primary steel markets, and this degree of improvement has been specially marked in sheet products. There has been an improvement in the volume of steel orders, and in this direction also, sheets generally lead. Price declines have ceased, and some American mills have made a further advance in sheet quotations. However, prices on local markets remain unchanged, at present, the situation still being the same as described in previous market reports. Sheet distributors state, however, that some increases may develop at any time, owing to the present strength of these markets, and the recent price gains at the mills.

BLUE ANNEALED—

10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—

18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 10
26 gauge	4 65	5 15
28 gauge	4 75	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—

	Queen's Head.	Fleur-de-lis.
28 gauge	9 50	8 75
26 gauge	9 25	8 50
24 gauge	8 65	8 10
22 gauge	8 30	7 65
18 and 20 gauge	7 60	7 50

Premier and Apollo—

10½ oz.	6 50	7 00
U. S. 28, base	6 10	6 60
U. S. 26	5 80	6 30
22 and 24	5 65	6 15
18 and 20	5 50	6 00
16	5 35	5 85
12 and 14	5 20	5 70

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

RECENT REVISIONS HOLD ON PIPE FITTINGS

Toronto.

No changes have developed in prices on pipe fittings, and the recent revisions are still being maintained. No market item of interest has been recorded, and the general market tone is unchanged. Following are the current quotations:

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 8 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	29
Do., ½ in., 2¼ to 4 in.	40
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in.	
close and short	50
Do., 4½ in. and larger	40
Do., long, ½ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

	Black	Galvanized
Class A	0 55	0 68
Class B	0 23	0 33
Class C	0 15	0 23

(Continued on Page 36)

THE GENDRON MFG. CO. Ltd., TORONTO

Makers of
Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

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Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

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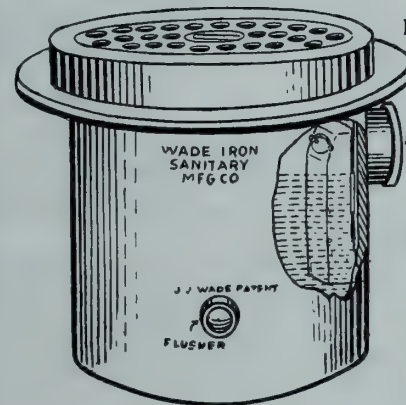
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TORONTO



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Drain**

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Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

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When such opportunities occur, the wise buyer acts --- and acts quickly.

For the information of the advertiser, as well as in fairness to the publisher --- say you saw it in Sanitary Engineer.

TORONTO MARKETS

(Continued from Page 34.)

LOW PRICE LEVELS HOLD ON
COPPER AND BRASS

Toronto.

The new lower prices recently announced on copper sheets, tubing and rods, are still being quoted locally, in spite of the higher levels on the primary copper markets, and some slight increases in other quarters. Quotations on brass goods of this nature are also holding unchanged, at present. There remains a firm tone in these products, and in view of recent market developments, quotations are undoubtedly being closely watched. Following are the local prices:

BRASS—

Sheets base, per lb.	\$ 0 22
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 25

COPPER —

Rods, base, per lb.	0 26
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned 16 oz. and heavier, lb.	0 35
Do., heavier, lb.	0 40
Tubing	0 27

FEW RANGE BOILERS SOLD AT
NEW LIST PRICES

Toronto.

The new quotations on range boilers, given in the revised list recently announced, are reported as not being well maintained. Business in these products is undoubtedly dull, with the 30-gallon size showing the only signs of movement. One dealer stated that there had not been very many boilers sold at the new prices, the evident deduction from this being that buyers had practically been sold up during the period while price cutting was in progress. The prevailing price list on range boilers is as follows:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$ 9 25	\$11 75
35 gallon	12 00	14 50
40 gallon	14 50	17 00
52 gallon	21 00	26 00
66 gallon	30 00	36 00
82 gallon	37 50	50 00
100 gallon	48 00	58 00
120 gallon	57 00	67 00
144 gallon .....	.....	76 00

QUOTATIONS STEADIER ON BAR
IRON AND STEEL

Toronto.

While there has recently been some improvement in the market tone on bar iron and steel, yet the average current demand cannot be compared with the recovery that has recently been apparent in the sheet markets. Quotations are, however, generally steady, and are unchanged at the following levels:

IRON AND STEEL		
Mild steel bars, base	3 25	3 50
Mild steel bands, 3-16 in. base	3 75	4 00
Bar iron, base	3 25	3 50
Angle iron, base	3 35	3 60
Horseshoe iron	4 10	.....
Tire steel	4 75	5 90
Spring steel	9 50	11 50
Crucible cast sheet steel	30 00	35 00
Mining drill steel .....	.....	18 50
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	4 10	4 50
Norway iron .....	.....	15 00
Toe caulk iron	5 40	6 40
Hoop steel	4 50	4 75

TONE IN CORRUGATED SHOWS
IMPROVEMENT

Toronto.

While the average demand for corrugated sheets does not contain any development of a marked nature, yet the undertone has recently improved owing to the firmer basis on primary sheet circles. With the slight price advance on plain galvanized sheets, and general improvement all through the steel industry—both as regards the percentage of production, and the volume of inquiry—quotations on corrugated sheets are now more firmly held. No further revisions have been recorded, and although the seasonal demand is drawing to a close, the tendency towards easier prices on corrugated is not so pronounced, in spite of the quieter period in this class of trade now approaching. Following are the unchanged quotations:

CORRUGATED SHEETS—

	Per 100 Sq. Ft.
No. 28 gauge	7 00
No. 26 gauge	7 50
No. 24 gauge	10 50
No. 22 gauge	12 50
No. 20 gauge	14 00
No. 18 gauge	18 50
Less 7½%.	.....
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	.....

JUST MODERATE SALES FOR
EAVESTROUGH

Toronto.

Sales of eavestrough and conductor pipe are described as just moderate, at present. The brisk fall movement of these products has registered a falling off in volume during the past week. There have been no special developments in these markets, and prices remain unchanged at the following levels:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 60-10 per cent.	.....

PIPE (CONDUCTOR)—

Plain, round or corrugated.	
	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths, list	49 00
Less 60-10 per cent.	.....

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 55 per cent.	.....

SLIGHTLY BETTER TONE IN TUBE
MARKETS

Toronto.

Quotations on boiler tubes remain nominally unaltered, with the average range of prices generally being maintained to care for current business. The weakness in this market has now subsided to some extent, and although there is no marked revision in demand for this class of tubular products, yet the recent improvement throughout the steel industry generally is reflected in the better undertone in tubes. Production of semi-finished steel products has recently increased, together with a better demand. This recovery has not been

featured to any extent in the boiler tube markets, but a gradual expansion of inquiry is now looked for with the approach of the winter season. Following are the local prices on tubes generally prevailing:

BOILER TUBES—		Seamless	Lapweld
1 inch .....	.....	26 00	.....
1¼ inch .....	.....	27 25	.....
1½ inch .....	.....	26 25	.....
2 inch .....	.....	28 75	25 00
2½ inch .....	.....	28 00	22 00
3 inch .....	.....	32 00	25 00
3½ inch .....	.....	40 00	27 00
4 inch .....	.....	44 00	35 00
.....	.....	60 00	40 00
.....	.....	75 00	50 25

LEAD AND ZINC GOODS HOLDING
THEIR OWN

Toronto.

Conditions in the lead and zinc markets remain generally unchanged, and these products are described as just "holding their own." Prices have remained steady for some weeks, and this is attributed to the fact that stocks have been thoroughly liquidated, and quotations are considered as being down to rock-bottom. The position and developments on the primary material markets are re-act, from time to time, in lead and zinc products. Following are the prevailing quotations on these goods:

LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	.....
Lead traps and bends, 10 per cent.	.....
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb 0 09½	.....
Cut sheets, ½ to ¾ lb. extra and cut sheets to size, 1c lb. extra.	.....
Solder wire, per lb.	0 29
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

NO LARGE INCREASE IN SCRAP
DEMAND

Toronto.

The slight increase in buying has continued in the scrap iron and steel markets, but this current improvement in demand is described as not being large enough to affect prices. Quotations, therefore, have not yet responded, and generally remain unchanged. Other scrap metals are quiet, with a lessening in the call for copper. A spasmodic movement is noted. It is said that scrap rubber is just moving sufficiently to keep the market from becoming stagnant. The following averages of dealers' nominal buying prices are for fairly large quantities:

WASTE MATERIALS—

No. 2 busheling	11 00
Heavy melting steel, gross ton	9 50
R. Rd. wrought iron, No. 1, gr. ton	10 25
Scrap pipe, gr., ton	00 7 00
Stove plate, net ton	11 00
No. 1 machinery cast, net ton	15 00
Heavy lead	3 75
Tea lead	2 00
Red brass	9 00
Yellow brass	5 00
Light brass	3 00
Heavy copper	9 25
Scrap zinc	3 00
Old rubbers, boots and shoes	2 00
Lumberman's rubber boots	1 25
Auto tires	0 50
Solid tires	0 75

(Continued on Page 38.)

"HERCULES" ABSOLUTELY NO FUMES



As well as being the strongest Drain Pipe Solvent made, Hercules has the much desired feature "no Fumes." It will open the most difficult stoppage. Use Hercules for frozen stacks, clogged sinks, closets, baths, wash tray, etc.

Guaranteed not to injure the piping nor affect glazing on enamel ware. Put up in 1 and 2 lb. cans. Cartons of 2 and 3 dozen.

"C. & H." Knife-Blade CUTTER WHEELS

These Cutter Wheels are positively the highest grade made, thin but just properly tempered to stand the severe strain. Our wheels are standing up and giving the service. We have them in all sizes to fit all makes of cutters.



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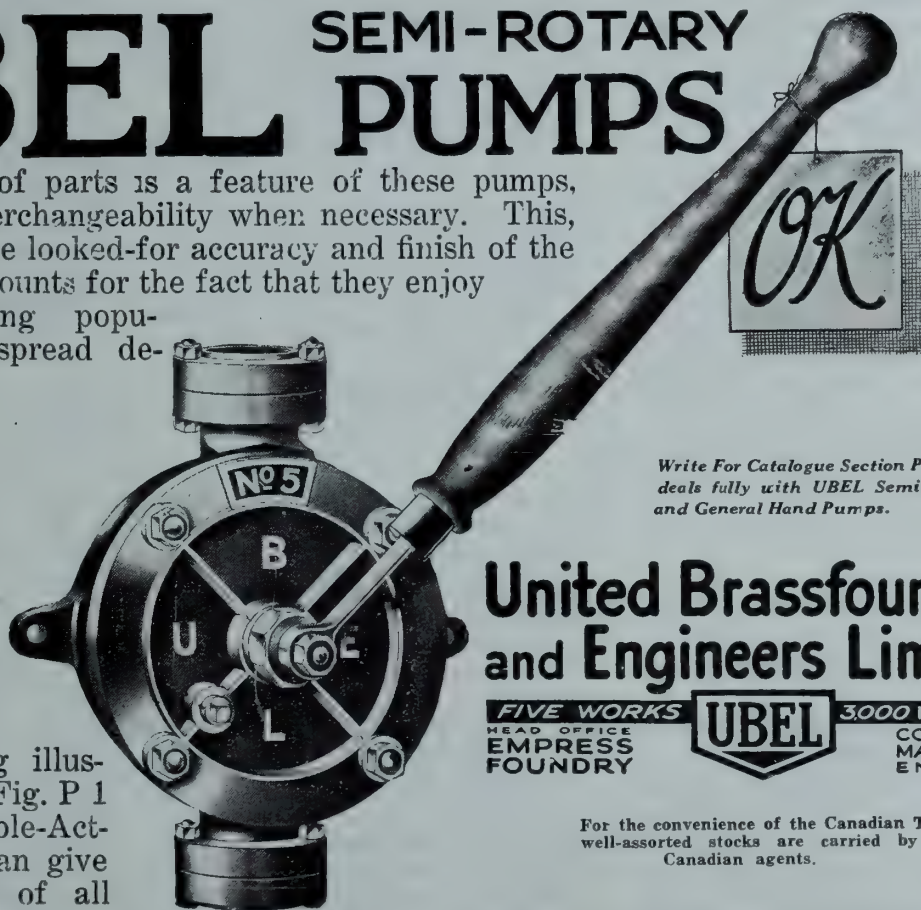
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Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



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Toronto.

When writing advertisers please mention that you saw their advertisement in the *SANITARY ENGINEER*.

TORONTO MARKETS

(Continued from Page 36.)

ENAMELLED WARE BUSINESS
STILL FAIRLY GOOD

Toronto

Current business in enamelled ware is reported as still good. Both prices and discounts are being well maintained; and in summing up the current situation in these products, one dealer stated to Sanitary Engineer, that prospects are considerably brighter than they were during the summer months. The recent improvement in general business conditions has been responsible for the development of a more optimistic outlook. Prevailing quotations on enamelled ware follow:

ENAMELLED WARE—			
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51	40	
Do., 5½ ft.	57	10	
All Steel Enamel Baths, 4, 4½ or 5 ft., net	16	25	
Do., do., 5½ ft., net.....	17	50	
Lavatories—			
17x10" Apron F139 or P4045	15	30	
18x24" Apron F154 or P3845 or P3847..	23	60	
18x21" Apron F169 or P4205	17	60	
18 x 21" Roll Rim, F197, F199 or P4655-6	15	40	
17 x 19" Roll Rim, F241 or P4345	12	60	
Sinks, Roll Rim, 16x24 in.	18	10	
Do., 18 x 30 in.	23	00	
Do., 20 x 30 in.	24	70	
Sinks, Flat Rim—			
16 x 24	1 only	2 only	3 only
18 x 30	\$7 60	\$7 70	\$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90
All above list except lines marked net.			

CURRENT ACTIVITY STILL BRISK
IN RADIATORS

Toronto.

Current activity in radiators and boilers is still noticeably brisk, many buildings and homes erected during the recent months now having reached the stage of heating installation. The increase in the proportion of fall construction work, has also been a factor in producing the better market tone on radiators generally. Discounts are holding at the revisions recently announced. The prevailing quotations follow:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent. for water and 54 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent. for water and 49 per cent. for steam.

Discounts on 1-column hospital size, water 30 per cent.; steam 31 per cent.

Wall radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water:

Round, 60 per cent. off list. Square 10 per cent. off list.

Steam:

Round, 15 per cent. off list; square, 5 per cent. off list.

ONLY MODERATE DEMAND NOW
FOR CEMENT

Toronto.

The movement in cements is reported to have registered a falling off from the degree of activity apparent a few weeks previous. The current demand is therefore, mere routine, with only moderate sales anticipated. Prices are holding unchanged, at present, but the opinion has been presented in some quar-

ters that recessions may develop with the end of the present season. The prevailing quotations follow:

CEMENT—

Car load lots.		Toronto.
Per barrel	4	00
Less car lots		
Per barrel, f.o.b. yard	4	75
Per barrel, delivered	5	00
Single bags, \$1.25 each; 4 bags to barrel.		
Extra charge of \$1.50 per load on less than 24 bag lots.		
Rebate of 20 cents for empty sacks.		

REVISED PRICES HOLD IN CLOSET
OUTFITS

Toronto

The recent price revisions on closet outfits, tanks, and bowls, has served to encourage the general situation in these products. The firming up in quotations has been noted with a stronger undertone in the market generally, and prospects are stated as fairly bright. There have been no further price readjustments announced; the recent new list prices generally being well maintained. Following are current prices:

CLOSET COMBINATIONS, low down each

Closet, standard outfit, oak	28	00
Do., with post hinge seat	28	75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	31	00
Do., vitreous china, with oak post hinge seat and cover	31	55
Do., vitreous china, with mahogany post hinge seat and cover	31	75
Do., white, Vitro or Pussyfoot, with oak post hinge seat and cover	31	55
Do., white vitre or pussyfoot, with mahogany post hinge seat and cover	31	75
Do., enamelled iron tank with oak post hinge seat and cover	31	55
Do., enamelled iron tank with mahogany post hinge seat and cover	31	75
Additions or reductions to above		
Add for reversible trap bowl	1	25
Add for syphon jet bowl	7	00
For ¾ in. valve on supply pipe	1	50
Deduct for supply pipe	0	70
Deduct for floor flange and bolts	0	80

CLOSET BOWLS—

Washdown bowl, less spud	10	00
Reversible trap bowl, less spud	11	25
Syphon jet bowl, less spud	17	00
"Richelieu" bowl	10	50

CLOSET TANKS, low down

Oak, Vitro or pussyfoot tank with fittings, less seat	13	10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15	25
Vitreous china tank with fittings, flush elbow and supply	18	00
Enamelled iron tank with fittings, flush elbow and supply	20	25

CLOSET SEATS—

Oak wood strip seat and cover	3	70
Oak post hinge seat and cover	4	75
Mahogany finish post hinge seat and cover	5	00

RISE IN RAW COTTON PRICES NOW
SPENT

Toronto.

The tide is now reported to have turned in the cotton markets generally, and the course of the recent rise in raw cotton, which was also reflected in prices on manufactured cotton goods, has evidently spent itself. This easier tone has resulted in holding prices on cotton wastes, with dealers stating that these recent cotton developments have generally served to maintain present quotations. While it was at first thought in some quarters that higher waste prices might materialize, as a result of the cotton flurry, distributors have adopted the principle of adhering to prevailing levels, rather than discourage the present volume of business through advanc-

ing prices. However it is said that easier waste prices are not so likely to develop under current cotton market conditions, for the downward tendency was undoubtedly more evident prior to the recent gains in the raw material. Quotations, therefore, are being held at the revised list announced last June.

Cream, polishing	0	19½	0	20
White, cotton.				
XXX			0	18½
XX			0	16½
X			0	15½
XC			0	14½
XXX extra			0	17
XX grad.			0	16
XLGR			0	15
X empire			0	14
X press.			0	13
Colored, cotton.				
Fancy			0	14
Lion			0	12½
Standard			0	11
Popular			0	10
Keen			0	09
No. 1.			0	13½
No. 7.			0	12½
No. 1A.			0	11½
No. 1B.			0	10½
Above lines subject to trade discount for large quantities.				

RENEWED INTEREST IN WROUGHT
PIPE

Toronto.

The new pipe list, No. 53, has resulted in renewed interest in wrought iron and steel piping. Some markets report an increased demand developing during the past two weeks, while the production ratio at the mills has registered no change. The bulk of the buying in pipe consists of seasonable orders, according to immediate needs. Following is the new list:

Price List No. 53. Sept. 22, 1921.

Size	Standard		Butt Weld Pipe		S/C	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
¼ in.	\$ 6 00	\$ 8 00	\$	\$	\$	\$
½ in.	4 20	6 30	7 20	9 30		
¾ in.	4 20	6 30	7 20	9 30		
1 in.	5 36	6 97	7 48	9 10		
1 ¼ in.	6 44	8 28	9 09	10 93		
1 ½ in.	9 18	11 90	12 92	15 64		
1 ¾ in.	12 42	16 10	17 48	21 16		
2 in.	14 85	19 25	20 90	25 30		
2 ½ in.	19 88	25 90	28 12	35 04		
3 in.	31 59	40 95				
3 ½ in.	41 31	53 55				
4 in.	53 36	68 08				
	63 22	80 66				

Standard Lap Weld Pipe S/C

Size	Steel		Gen. Wrot. Iron	
	Per 100 feet.			
2 in.	\$23 68	\$29 60	\$31 82	\$37 74
2 ½ in.	35 10	44 46	47 97	57 33
3 in.	45 90	58 14	62 73	74 97
3 ½ in.	54 28	70 84	74 52	91 08
4 in.	64 31	83 93	88 29	107 91
4 ½ in.	72 39	92 71	1 04	1 24
5 in.	84 36	108 04	1 21	1 45
6 in.	1 09	1 40	1 57	1 88
7 in.	1 45	1 88	2 02	2 45
8 in.	1 53	1 98	2 18	2 58
8 ½ in.	1 76	2 28	2 45	2 97
9 in.	2 14	2 76	2 97	3 59
10 in.	1 98	2 56	2 75	3 33
10 ½ in.	2 55	3 30	3 54	4 28

METALS DO NOT RETAIN RECENT
IMPROVEMENT

Toronto.

Ingot metals generally have failed to retain the recent degree of improvement, and after some advances on the primary markets, are now marking time at slightly easier levels. Both the domestic and foreign demand for copper is now described as only of light proportions. Some market fluctuations, and the general decline in the volume of inquiry, have produced a stationary effect on other metals.

COPPER.—A quieter market and lower prices have developed on copper at primary centres. Producers' quotations have eased from the high advances recently recorded, and both the domestic and foreign demand has fallen off noticeably. The local situation remains unchanged, and prices are still at the 17 cent level.

TIN.—The recent fluctuations in exchange have alternately affected tin quotations to both higher and lower levels. These changes render the market somewhat uncertain, but the sharp rise in exchange values early in the week, caused a corresponding strength in primary market quotations on tin. Local prices are holding at 35 cents.

LEAD.—This market is stated as steady in some reports, but the current quotations are generally unchanged. Local prices vary from \$6.50 to \$6.75.

WINNIPEG MARKETS

WINNIPEG, Oct. 29.—Several price changes affecting plumbers and steam-fitters' supplies have recently been recorded. Among the most noticeable revisions are the lower prices on black and galvanized sheets, this decline taking place at the same time that the primary sheet markets have registered an increase in demand, with this firmer tone being reflected through other phases of the steel industry.

Quotations on Canada plates are again reduced; and lower prices are given on wrought iron nipples and wrought couplings. Trim pipe cutters also cost less. A firm tone appears in the cotton waste markets; with eavestrough, conductor pipe, and range boilers being other products continuing to hold their own. Prices on other sanitary and heating goods generally remain unchanged.

REVISED QUOTATIONS ON GALVANIZED SHEETS

Winnipeg

A reduction in quotations on black and galvanized sheets has been made since last issue of Sanitary Engineer. It is thought however that these prices will not stand long as the market is taking on a firmer tone and another revision in prices may be announced at any time. Following are the latest quotations:

SHEETS—	Galvanized, Black.
	Per 100 lbs.
10 gauge	5 70
12 gauge	5 70
14 gauge	5 80
16 gauge	6 75
18 gauge	6 90
20 gauge	6 90
22 gauge	7 05
24 gauge	7 05
26 gauge	7 20
28 gauge	7 80
10½ oz.	8 20

WROUGHT NIPPLES HAVE SLIGHT PRICE CHANGE

Winnipeg

New discounts have been recorded on wrought iron nipples, which make the selling prices somewhat lower. Following are the new quotations:

WROUGHT NIPPLES—	
Close or short:	
4 inch and smaller	45 per cent. off
4½ inch and larger	35 per cent. off
Long:	
4 inch and smaller	55 per cent. off
4 inch and larger	45 per cent. off

SPELTER.—Some stiffening in the spelter markets coupled with slightly advanced prices, has been noted in recent reports from southern markets. The increase in activity is attributed to brass manufacturers, and inquiries from other producers. No marked gains, however, can be recorded and local markets do not show any signs, at present, of either improvement or change. The price of \$7.00 still generally remains.

ANTIMONY.—This market is steady and unchanged at previous levels. Sales are by no means numerous, and there are no new features to report. Quotations remain locally from 8 to 10 cents.

ALUMINUM.—Some inquiries are reported to have been received lately from automobile manufacturing interests, but the question of price is given as one of the drawbacks to the consummation of orders. The average local price prevailing is now 28 cents.

RANGE BOILER PRICES HOLD UNCHANGED

Winnipeg

Although the prices of galvanized sheets have been reduced no change has been made as yet in the prices of Range Boilers. The unchanged prices are as follows:

RANGE BOILERS—	
20 gallons, each	10 00
30 gallon, each	10 00
35 gallon, each	13 25
40 gallon, each	16 25
52 gallon, each	23 45
66 gallon, each	33 15
82 gallon, each	40 60
100 gallon, each	62 50
120 gallon, each	75 00

CANADA PLATE PRICES AGAIN LOWERED

Winnipeg

Another reduction has been announced in the prices on Canada plates. Following are the new quotations:

CANADA PLATES—Blued.	
18 x 21 inch, per box	7 25
18 by 24 inch, per box	7 25
20 by 28 inch, per box	7 25

REDUCED PRICES GIVEN ON WROUGHT COUPLINGS

Winnipeg

Prices have been reduced on wrought couplings and following are the latest discounts:

WROUGHT COUPLINGS—	
¾ inch to 4 inch	20 per cent. off
4½ inch and larger	5 per cent. off

TRIMO PIPE CUTTERS NOW LESS

Winnipeg

Prices are lower on Trim Pipe Wrenches. Following are the new prices:

TRIMO PIPE CUTTERS—	
No. 1, each	3 25
No. 2, each	4 50
No. 3, each	7 50

HEATING POINTERS

(Continued from page 14)

tire time to the manipulation of the heating system and the windows or to the valves governing the temperatures for certain processes of manufacture.

"The cost of heating buildings supplied from an outside source, especially when steam is used, is nearly always materially reduced by installing automatic temperature regulation. With such systems of heating, the occupants control the temperature in the easiest way, which is to open the windows, and seldom turn off the heat. When the coal is burned on the premises a natural human instinct to reduce labor as much as possible tends to some extent to prevent waste.

"A fair share of all the public buildings are equipped with automatic temperature regulation, particularly those buildings having mechanical ventilation. This is done not only because fuel economy is sought, but also because, with such ventilation very rapid air changes are necessary and manual temperature control is impossible. There is a decided tendency to install automatic temperature regulation for street and railway cars, in order to take the fullest advantage of the heat given off by the occupants.

Cost of Automatic Regulation

"The cost of installing automatic temperature control to an existing plant varies, of course, with the conditions. In manufacturing buildings, it is often possible to control a large number of heating units in the same room with one thermostat. While perhaps not so minute regulation will thus be accomplished, a general condition will be attained of preventing overheating.

"Where the building is considerable in size and has many rooms, a system of regulation having many units—such as the type using compressed air as motive power—or an electrical system, is least expensive and most satisfactory. With its control of each unit of radiation, varying the amount of heat as the varied exposure and heat source conditions of the buildings require, such a plant must reach a high efficiency. Maintenance seems to cost annually not to exceed 2% of the cost of the plant.

"For buildings having but one or two rooms, and for residences of reasonable size, however heated, single-unit regulators, which may be self-contained, or electric or mechanical, give satisfactory results and the maintenance cost is negligible.

"It may be roughly stated that a good system of automatic temperature regulation may be installed in a building for from 5% to 10% of the cost of the heating plant."



Classified Buyers Guide

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 James Morrison Brass Mfg. Co., Toronto.
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 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Trimont Mfg. Co., Roxbury, Mass.
 J. H. Williams & Co., Brooklyn, N.Y.
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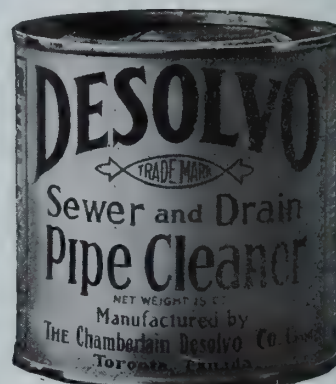
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INDEX TO ADVERTISERS

Allison, K. B.	42
Amherst Foundry Co. . . Inside front cover	
Atlas Engineering Company	7
Atlas Tank Works	35
Beaton and Caldwell	42
Canada Metal Co.	8-9
Canadian Brass Co.	2
Canadian John Wood Mfg. Co.	4
Canadian Tube and Steel Products ..	44
Chamberlain Desolvo Co.	42
Canadian Combustion Co., Ltd.	43
Crane, Limited :	4
Cunningham, W. H. & Co., Ltd.	37
Dennis Wire and Iron Goods Co.	3
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co. . Outside front cover	
Fittings Limited	6
Galt Brass Co. Back cover	
Gendron Mfg. Co., Ltd.	35
Hause Mfg. Co., Chas. F.	44
Hourd & Co.	44
Hoyt Metal Co.	42
Hall Zryd Foundry Company, Ltd.	
Inside back cover	
International Malleable Iron Co.	33
Jardine & Co., A. B.	8
Jenkins Bros., Limited ...	10
Katie Foundry	44
Kerr Eng. Co., Ltd.	9
Marks & Co.	44
McIntyre & Taylor, Ltd.	35
Morrison Brass Mfg. Co., Ltd., Jas. ..	7
Mueller Mfg. Co., Limited, H.	31
Port Hope Sanitary Mfg. Co., Ltd. ..	22-23
St. Louis Technical Institute	41
Standard Sanitary Mfg. Co.	12
Steel Trough & Machine Co.	44
Toronto Hardware Mfg. Co.	43
United Brass Founders	37
Vulcan Co., Ltd.	10
Wade Iron & Sanitary Mfg. Co.	35
Wallaceburg Brass	5
Warden King, Limited	6
Williams & Co., J. H.	43
Wolverine, Ltd.	44

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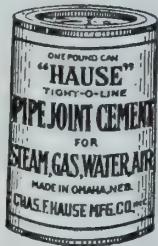
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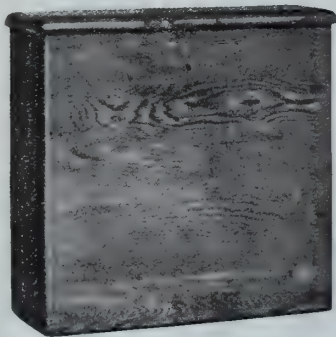


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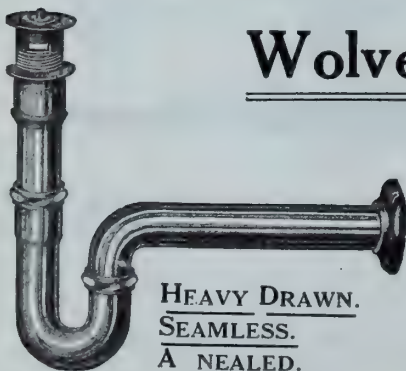


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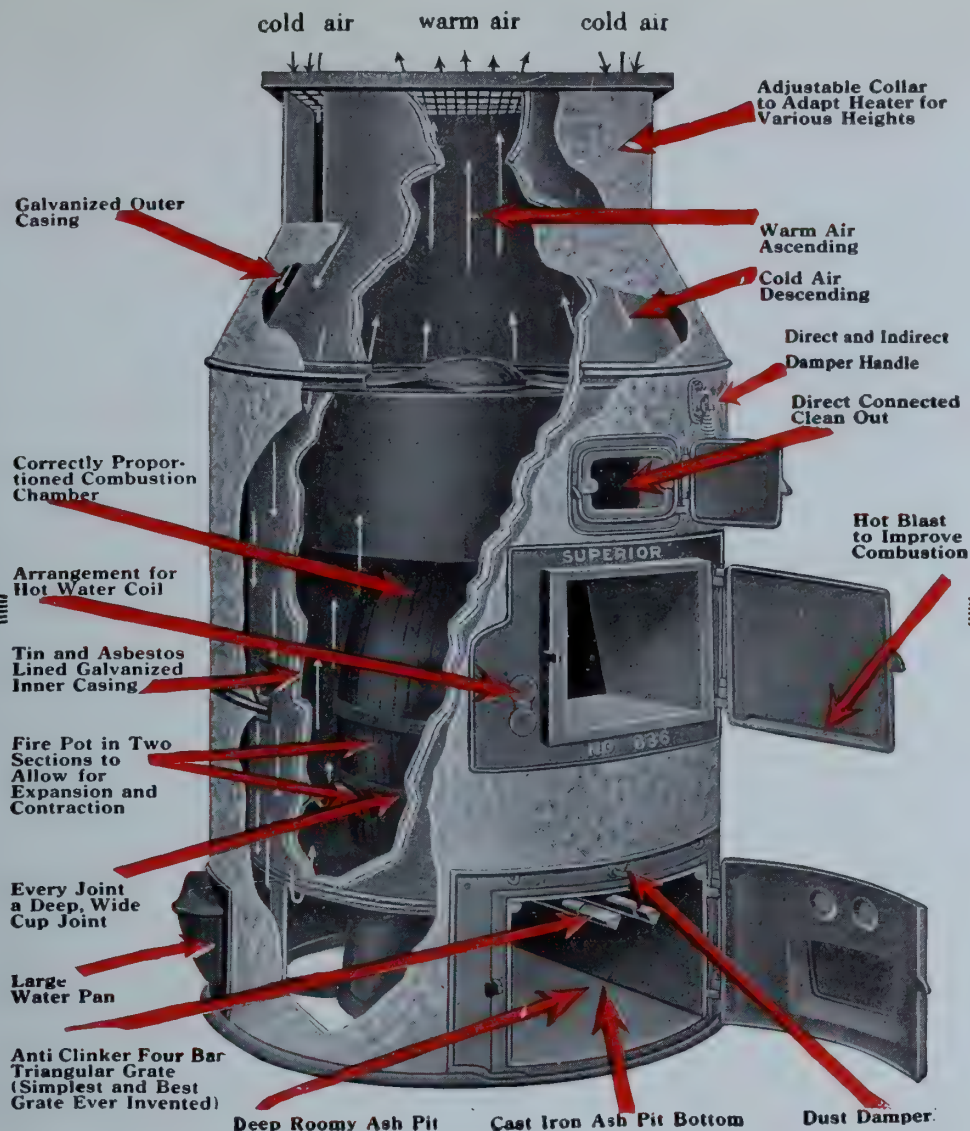
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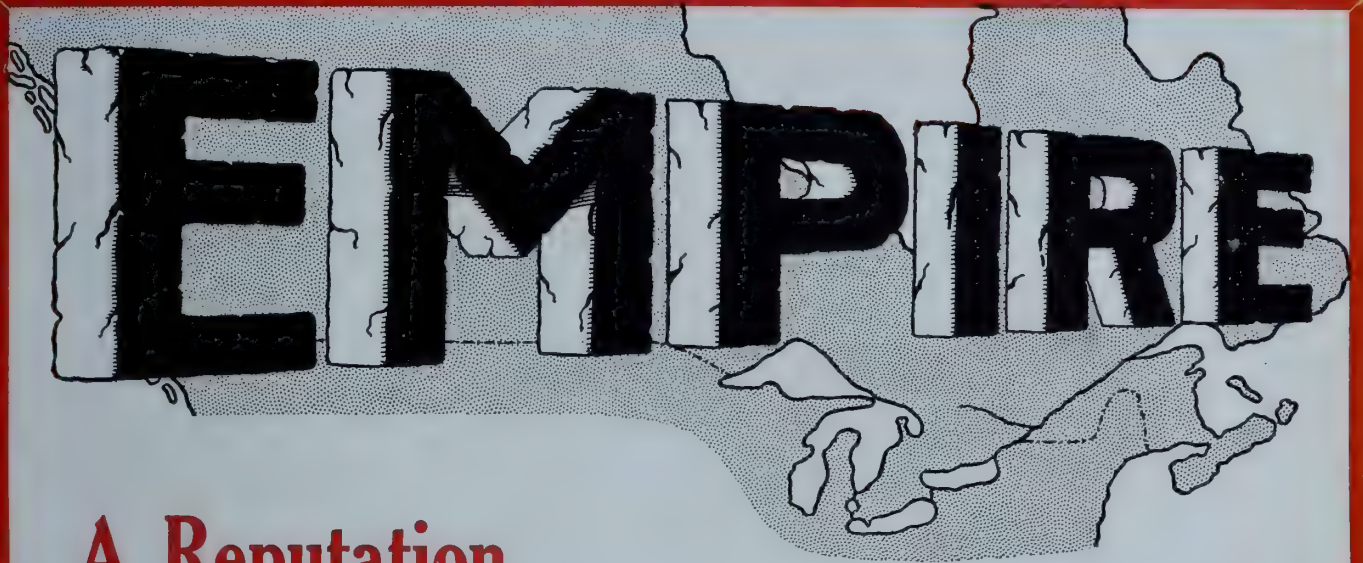
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, NOVEMBER 15, 1921

No. 22



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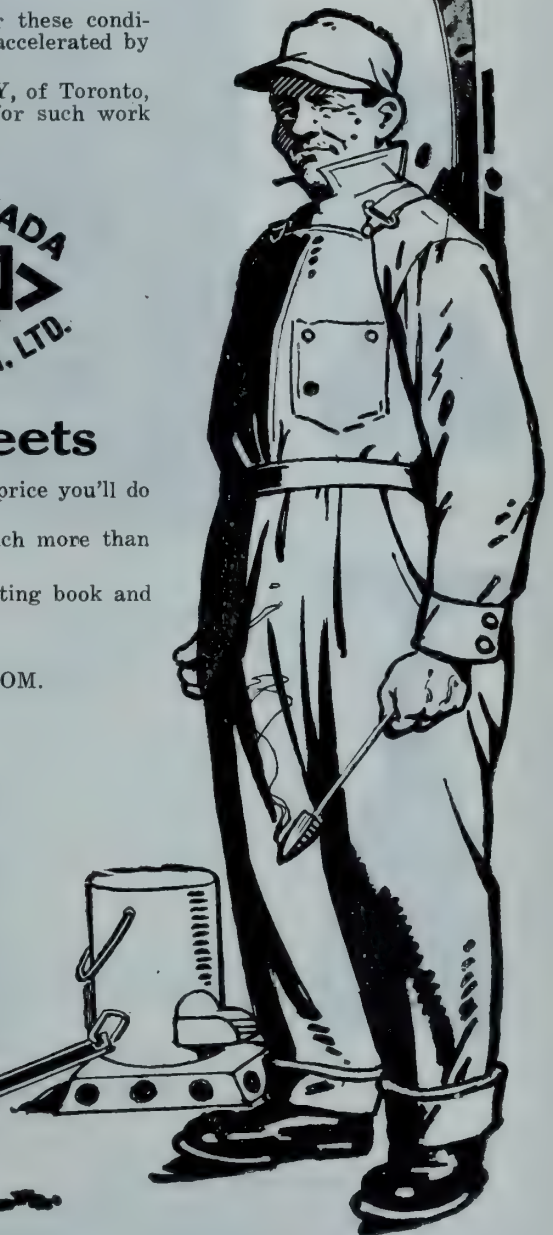
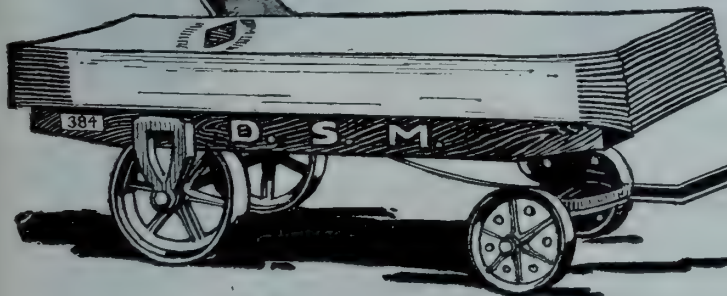
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Ask your jobber for price—it's not much more than plain steel.

Write us for TONCAN METAL estimating book and TEXT-BOOK on corrosion.

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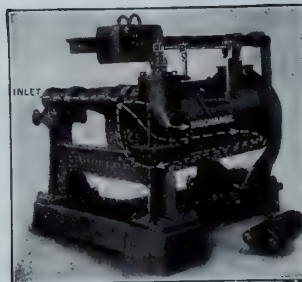
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Some New Thoughts From an Old Man



By Booster Binx

Last summer, I took an automobile camping trip through a remote, unfrequented part of the Adirondack Mountains. One afternoon browsing around in a clearing, picking berries for supper, I was startled by coming into an old burying ground and finding a long-whiskered man standing, statue-like among the head stones.

It turned out, he was the oldest man in those parts and spending an hour among his ancestors' last resting place.

He was mighty glad to see some folks from "the outside world," as he called it; and asked me to "drop around at dark and have a pipe with him." It turned out he had been in the heating business in Rochester; made his little pile, and years before had come back among his kin, as he said, to spend the sunset of his life.

Altho 95 he was keen as a brier.

Just naturally we got to talking business, which is only another way of saying I mentioned Burnham Boilers. He questioned me pointedly about the firm who makes them; and then about a hundred and one points about the boilers.

Finally he knocked the ashes out of his pipe and remarked:—"Your firm isn't the oldest in the business, but it evidently has the newest ideas on boilers." Then he added: "Old firms sometimes get contented, and kind of go to sleep."

You folks are young enough so you've got a long way to go before nodding time gets you."

Those are the new thoughts from an old man, that I took away with me. Now I leave them with you; so you in turn may pass them on.

When we chat together again, have a notion it will be about—Betwixt, or the Biggest Thing Between.



Lord & Burnham Co. Limited
(Boiler Department) of Canada

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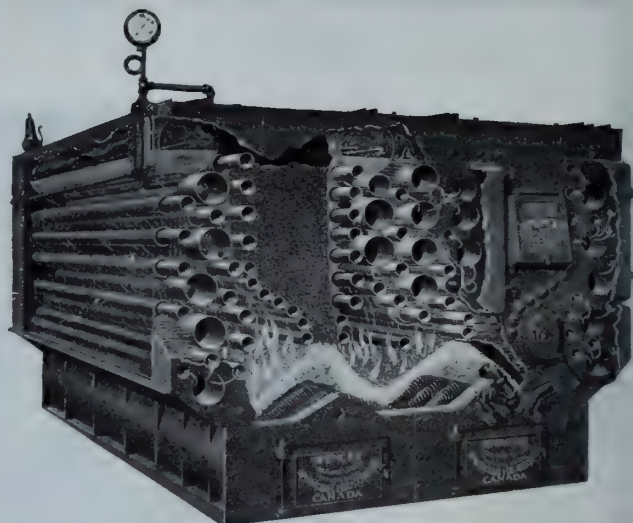
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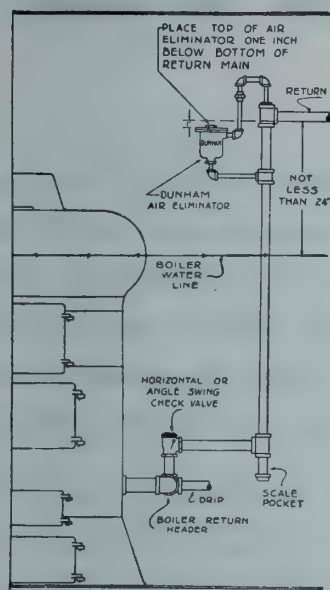
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Removal of Air From the System

The Dunham Radiator Traps attached to the radiators permit the free escape of the air from the Radiators into the return piping, but prevent the waste of any steam from the radiators.

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The lowest point of the dry return at the boiler **should not be less than 24 inches** above the boiler waterline. This means that headroom must be carefully checked before boiler is erected, to make sure that suitable grade can be given to steam and return main and provide the necessary space (not less than 24 inches) between waterline of boiler and return main.

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Where conditions permit greater headroom than 24 inches between boiler waterline and dry return, make installation to secure maximum distance.

* This is the sixth of a series of talks on steam heating, appearing monthly in Sanitary Engineer.
You will find all very interesting and of help in your daily work.

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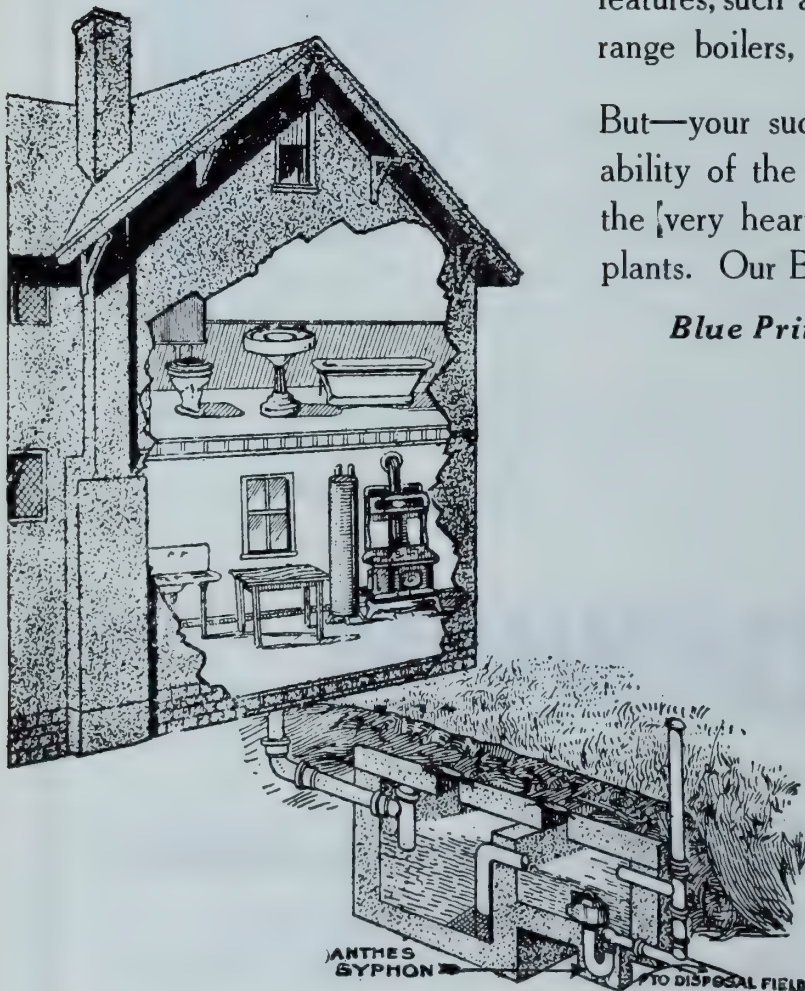
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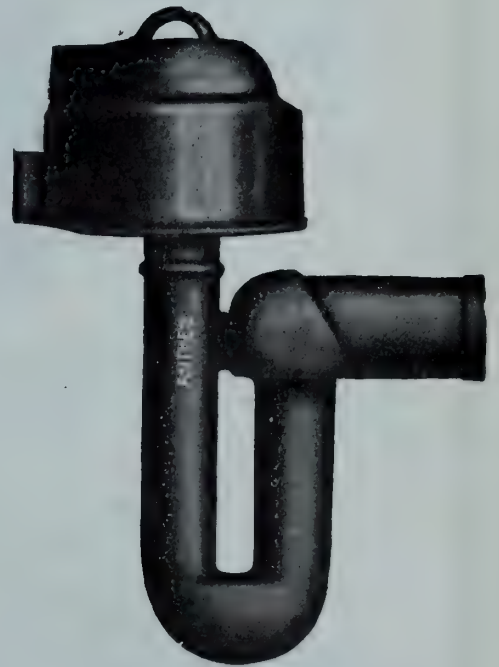
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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV.

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No. 22

CONTENTS

Regulations Affect Brass Goods Manufacturers	11
Self Corrosion of Cast Iron Pipe	12
Comprehensive Display of Plumbing Equipment	13
Should Plumbers have Show Rooms	14
Making Taper Joints of Sheet Copper	15
Circumference Tables for Tinsmiths—Catalogs and Booklets	16
Small Set of Books for Plumbers	17
Proper Ventilation Without Heat Loss	18
Sewage Disposal for Small Communities	19
Editorial Comment	20
Standard Furnace Installation Code	21
News from Here and There	24-25
Market Conditions and Tendencies, Montreal, Toronto, Winnipeg	26-34

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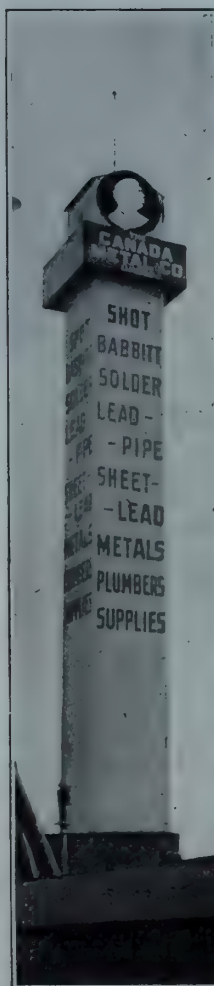
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Plumber and Steamfitter of Canada

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TORONTO, NOVEMBER 15, 1921

No. 22

Ruling Affects Brass Manufacturers

Government Customs Ruling Restricts Importation into Canada of "Scrap" Brass from Munitions — Such Material Classed As Manufactured Product — German and U. S. Manufacturers of Plumbing and Other Brass Goods Purchase Such Material and Import It As "Scrap"

HOW the existing Canadian tariff schedule is operated to the disadvantage of certain Canadian manufacturers, and to the distinct gain of foreign producers of brass goods, is contained in the present interpretation of Clauses Nos. 352 and No. 348, in the tariff regulations.

The definition as to what constitutes "scrap" brass has arisen in connection with brass forgings of fuse bodies, noses and primers, taken from shells, huge quantities of which have been sold by the British Government War Stocks Disposal Board. Naturally, certain Canadian concerns interested in this connection, have attempted to import their purchases of this material under the description of "scrap" brass. It is claimed that these brass forgings, when being removed from the shells are damaged in the process to such an extent that they are of no possible further use except as scrap.

However the minister of Customs and Excise adheres to the clause No. 352, which places a 20 per cent. ad valorem duty on all imported articles of brass manufacture coming from Great Britain; although clause No. 348 of the same tariff schedule provides for the "free" admission of "scrap" brass. The ruling of the Customs Department at Ottawa that these caps and primers are liable to the duty, has far-reaching effects as regards Canadian brass products, and is liable to be reflected in the future degree of activity in the brass manufacturing industry of this country.

Importation Prohibitive

"The application of this duty," said E. W. Knight, Purchasing Agent of Frankel Bros, Limited, to Sanitary Engineer, "renders the importation of this waste material prohibitive. At the same time, this material is being imported duty free into the United States, and other foreign countries; a state of affairs which gives brass manufacturers of those countries a distinct 'edge' in the cost of production over the Canadian competitor."

"The fact that the British Government listed this material as 'scrap' and

sold it under that description," said Mr. Knight, "is claimed as an admission that the forgings are of no practical use, except for re-melting purposes. On the other hand, the Canadian authorities claim that they are part of a manufactured article, and as such are liable to taxation. This ruling is looked upon as absurd, both in the waste material markets, and also among those interested in scrap brass from the viewpoint of manufacturing brass products of various description, for it is a distinct restriction to Canadian trading in this commodity."

"The largest quantity of scrap brass, 180,000 tons, placed on the markets at any one time, has recently been sold by the British Government interests. Some fifty thousand tons of this material, shell noses, etc., have been re-sold to German concerns, thus giving Germany's brass factories a much lower ratio of production cost than manufacturers who have to use virgin metal. It is considered likely that a large proportion of the remainder—130,000 tons, will find its way into the United States, as that country allows scrap brass to enter duty free, the same as Canada. The difference comes in, however, by adhering to the 'scrap' definition at the U. S. ports; while classing the shell forgings as 'parts of manufactured brass goods' in Canadian custom regulations."

In this connection, it is said that one American dealer in scrap materials had shipped a quantity of these brass leavings to Canada, but when the consignment was held in bond here for duty, this broker had it diverted to the States. Under such conditions, the production of manufactured brass goods can be carried on by U. S. firms on a much lower primary cost basis than is attainable among Canadian branches of the industry. A number of Canadian firms, however, state that they use nothing else but the virgin metal in their products, as certain defects or pieces of iron and steel found in the ordinary scrap brass, frequently play havoc with tools used in the machining of castings. With respect

to the shell caps and primers, however, it is pointed out that these are pure brass forgings in the first place, and with such tremendous quantities available, brass goods could be produced at much lower cost.

The vast difference between scrap brass quotations and the cost of virgin metal in the ingot stage, is a factor of consideration. Its importance is accentuated when traced down to the price to the consumer, of the finished brass product. The Canadian Customs authorities, according to Mr. Knight, have repeatedly seen samples of the scrap metal under discussion, but fail to change or re-consider their decision. The last ruling on this topic, received by Frankel Bros., which firm are extensive dealers in scrap materials of almost every description, was, that the law provides the duty and that the officials are not placed there to change the law, but to administer it.

Could Not Be Used as Munitions

Under these circumstances, no steps can be taken by Canadian concerns to offset the handicap given domestic brass industries. Other factors entering into the case are, that in addition to being taken from shells, and damaged in that process, these caps, primers and so on, could not be re-modelled to meet the strict measurement requirements exercised in the use of their original purpose. Yet another phase of the situation, governing their definition as to "scrap, or not," is the fact that they could not again be used in the manufacture of munitions except under Government order.

It is further pointed out that fairly substantial supplies of scrap brass from munitions were purchased in Canada shortly after the Armistice by United States interests, and shipped to that country duty free. Should this be re-imported into Canada, the Ottawa decision is that such material would be subject to the 30 per cent duty on "manufactured" brass articles from the United States. The keynote of the whole affair hinges upon the question, "What is scrap?"

Self-Corrosion of Cast Iron Pipes

Discussion on Disintegration of Concrete in Alkali Soils Brings Out Result of Extensive Experiments Made with a View to Obtaining More Definite Information on Destruction of Cast Iron Water Mains, Particularly in Western Provinces

Reproduced in Sanitary Engineer by courtesy of W. Nelson Smith, M.E.I.C., Consulting Electrical Engineer Winnipeg Electric Railway Co.

THE widespread interest in the corrosive action of the alkaline salts found in the soils of the prairies of Western Canada has hitherto been centred upon the corrosion of Portland cement concrete. The universal use of concrete in foundations, aqueducts, and sewers has naturally caused the disintegration of all such structures to be a matter of real concern to the public, as well as to the engineering profession.

It now becomes our duty to call both professional and public attention to a new set of facts that until recently have been suspected by only a very few engineers and entirely unknown to the general public, namely,—the self-corrosion of cast iron and of other commercial metals used in buried structures, by the same group of soil salts that destroy concrete.

This investigation of a large public utility, in order to derive incontestable proof that a great deal of the destruction of city water mains by external corrosion could not be due to electrolysis from stray electric railway currents in the earth. In order to corrode a pipe, a stray current must be flowing out of it into the surrounding earth, and that can only happen adjacent to a power station or in close proximity to some other path of lower resistance, such as a railway track or an underground cable, which may be connected to the power station. A large proportion of the corroded water pipes were either remote from railway tracks or in localities where current would be flowing into them and not out of them, and it was believed that some cause other than stray current was operating in such localities.

Cast Iron Pipe Corrodes

Cast iron pipe has been generally thought to be immune from corrosion except in strongly acid soils, but our field observations and chemical researches have convinced us that the self-corrosion of cast iron pipe in the moist clay and lime silt non-acid soils of the Red River valley is an indisputable fact, and is bound to happen anyway, whether stray current is absent or present.

Although a number of research experiments yet remain to be completed, we consider the results so far obtained to be scientifically concordant and quite conclusive. We, therefore, submit these memoranda for the information of the engineering profession, and especially those members of it who are responsible for the construction and maintenance of public utilities employing cast iron pipe

and other metallic structures underground.

The vital importance to every community, of the safety of its underground water and gas pipes and lead covered cables, places the self-corrosion of such metal structures in alkaline soils in the same category as that of the corrosion of concrete, as a matter of public concern.

The following data have been collected during our work on cast iron. Other research work now being carried out on lead and copper, is still incomplete, but will doubtless be available six months hence, along with fuller details of research on cast iron, not yet ready for full presentation.

The chemical principles involved are not new. Most of them have been known to chemists for some years, but this knowledge seems never to have been widely disseminated in the engineering profession. We can only claim to have brought out facts that could have been ascertained with the aid of any well equipped chemical laboratory at any time during the past fifteen years, had the incentive been sufficient.

Electro-Chemical Principles

Every metal in contact with water tends to dissolve in the water, or in other words to pass from its metallic, atomic condition to its ionic condition independently of any e.m.f. impressed from outside. This tendency to go into solution is termed solution pressure. Such metals as sodium, potassium, and magnesium, the alkaline metals, very readily go into solution and are conceived to have a high solution pressure, while gold, mercury and platinum are metals with very low solution pressures. These solution pressures in fact correspond to the positions of the various metals in the so-called electro-chemical series of elements, tabulated in the text books.

Iron occupies an intermediate position in the electro-chemical series, but is considerably above hydrogen, which is considered as a metal in the series on account of its electro-chemical behavior. Iron has a higher solution pressure than hydrogen and can, therefore, displace it. Consequently the iron ions entering a solution are able to drive out of solution any metallic ions occurring below it in the electro-chemical series, or any hydrogen ions. Take the case of iron in water. Water, which is electro-chemically regarded as the combination of an H ion with an OH ion, easily provides the displaceable H ion whose lower solution pressure causes its ready

exit from the solution in the face of the higher solution pressure of the iron ion. In actual experiment iron was found by Walker to go thus into solution in the purest of water free from dissolved oxygen or carbon dioxide. A perfectly dry surface of iron will not corrode even when exposed to air or pure oxygen. It will only corrode if moisture be present where there is a hydrogen ion to be displaced. Rusting should therefore be conceived, fundamentally, not as an attack of oxygen, but as a retreat of hydrogen.

According to the electro-chemical conception, when an atom of metal passes into solution, it assumes a positive charge of electricity and leaves the metallic mass from which it is separated, negatively charged. Metallic ions and hydrogen are therefore conceived of as having positive charges and travelling in the same direction as the electric current. The OH ions and the acid radical ions have negative charges and travel against the current. This is true whether the act of going into solution generates the electric current, as in a primary battery, or whether the liquid solution is decomposed and its elements driven out of solution by an impressed electric current. The electro-chemical mechanism is, therefore, somewhat analogous to the reversible property of an electric current on a wire in a magnetic field, in which the current produces motion, or the motion can produce current.

The self-corrosion is therefore now recognized as being in all cases an electrolytic reaction, carried out in a water solution.

So far we have considered pure water only. Coming to the effect of impurities in the water, they either stimulate or inhibit the solution of iron.

Corrosion is stimulated by substances which increase the concentration of hydrogen ions in a solution in contact with iron. These substances all stimulate corrosion because they provide more H ions for the iron to displace.

On the other hand hydroxyl ions (OH), and all alkali hydrates, inhibit corrosion, because it is impossible to have any free hydroxyl ions. In other words a true alkali solution is non-corrosive, while a solution that tends even so slightly to be acid, will tend to dissolve iron. Certain neutral salts in the presence of water hydrolyze, thus offering free hydrogen ions which accelerate corrosion.

It is seen that the tendency of iron is to form ferrous hydroxide. If oxygen

is present in the solution or has access to the ferrous hydrate from the air, it quickly oxydizes the ferrous to the ferric hydrate, which is the reddish yellow product commonly called iron rust.

The Soils of the Winnipeg District

The soils of the Winnipeg district are lacustrine and alluvial silt and clay overlying glacial till. They are very rich in lime, and are the result of glacial pulverizing action, which was very efficient, causing the soil particles to be very finely divided. This fine division exposes the maximum of surface to the solvent action of the ground waters, and consequently the soluble and commonly called "alkaline salts" present in the original limestone have been leached out and concentrated in local areas, giving rise to the alkaline nature of our surface soils. The redistribution of these soluble salts is little understood, but the prairie areas adjacent to Winnipeg have a very high concentration of these salts in the surface layers of the soil, so great in fact that they everywhere approximate the toxicity limit for plant growth. In the presence of water, the soils are of very low electrical resistance.

The salt content of the ground waters

is very largely sulphates and chlorides of calcium and magnesium, the sulphates predominating. Aggregations of crystals of calcium sulphate and magnesium sulphate frequently occur in a layer about 4 feet beneath the surface. This layer is several inches thick, and is highly calcareous. It has been observed at many widely separated excavations where water mains had failed. When this layer is dug through in placing a pipe line, the earth used in back-filling the trench naturally contains these salts and they come in contact with the pipe, creating the possibility for galvanic action. These salts are even more frequently met with at lower levels, 10 feet or 12 feet below the surface, in the clays immediately underlying the pulverized limestone layers. They have crystallized out along the bedding planes and in the irregular vertical breaks in the horizontal layers of clay. Very frequently they occupy, as aggregations of crystals, the spaces at one time filled by the roots of a tree.

The significance of these saline deposits lies in their location respecting the water mains. In the Winnipeg region they occur at levels of from 4 feet to 12 feet below the surface, and have

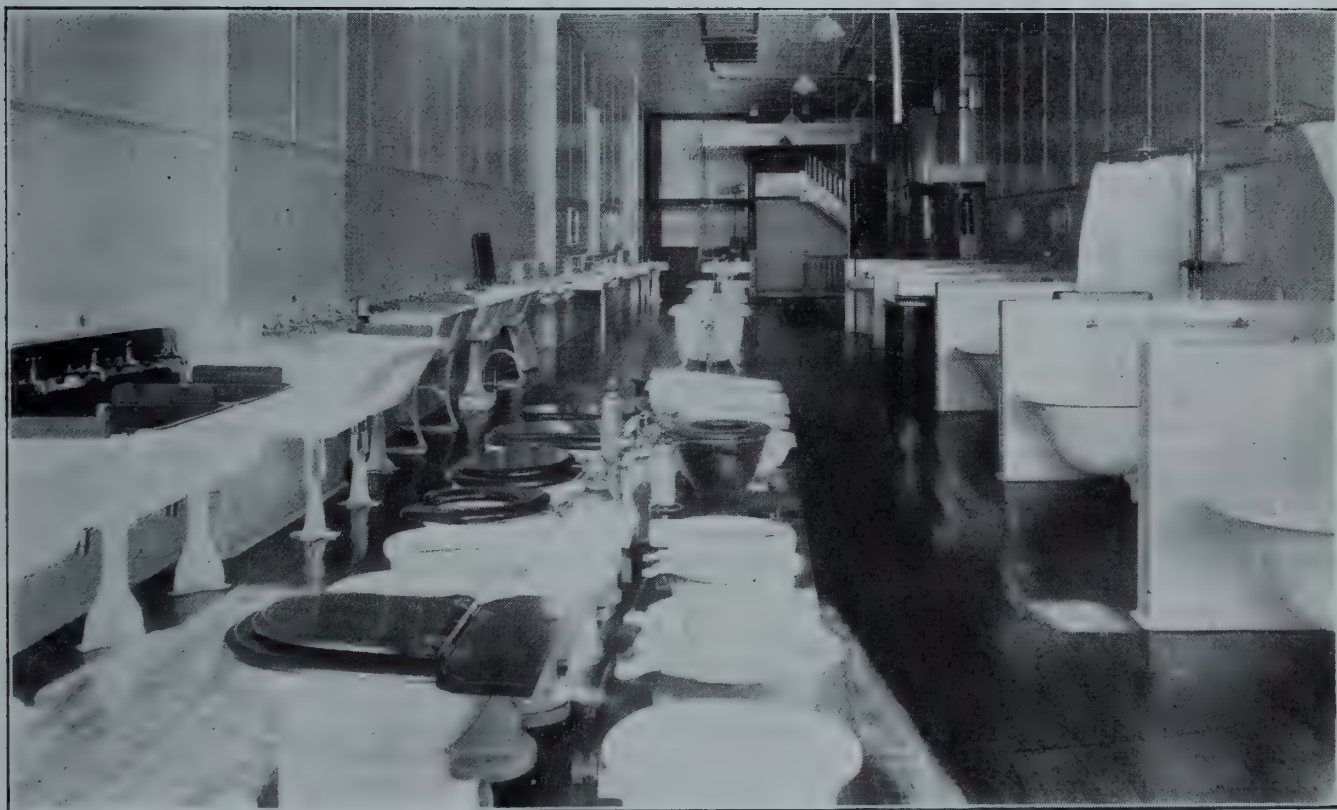
been frequently observed in contact or within a few inches of the pipe as it lay in place, where the water mains had failed from corrosion.

These deposits of salts form the reservoir from which the ground waters receive their saline load. The more soluble chlorides have not been found in crystal aggregates, nor are the chlorides so widely distributed as the sulphates.

The carbonates, chiefly of calcium and magnesium, are present in very large quantity, principally as calcium carbonate. However, in the presence of CO_2 in the ground water, the carbonate CaCO_3 becomes the bicarbonate $\text{Ca}(\text{HCO}_3)_2$, which solution provides two more hydrogen ions per molecule, making the solution slightly acid in its effect, thus accelerating the solution of metals; particularly iron. The presence of a large quantity of carbonate in the soil readily accessible to ground water carrying CO_2 in solution, thus constitutes an unlimited reservoir for the creation of corrosive bicarbonates.

The distribution of these salts is by no means uniform. Excavations only a few rods apart will show wide variations in the proportion of salts, both visibly and on analysis. The proportion of moisture

Comprehensive Display of Plumbing Goods



The use of a number of sample bathrooms using various styles of equipment is one of the best methods employed by this firm to sell plumbing equipment. It will be noted that partitions, about four feet in height, separate the various booths. Shower baths, basins, closets, towel bars and other accessories are shown in place. On the other side of the display room are grouped laundry tubs, various styles of basins, sinks, etc., while closets, footbaths, bath tubs, etc. are grouped in the centre. The room is painted white to correspond with the snowy white equipment and with expert salesmen always in attendance many prospects are developed into enthusiastic purchasers of the latest in bathroom and kitchen plumbing equipment.

in the soil, which is also variable, has, moreover, everything to do with the chemical activity of all these salts.

Besides the foregoing there is also a small percentage of phosphate and occasionally a percentage of nitrate, which is extremely variable. Nitrates are commonly to be expected in soils near the surface, but sometimes occur lower down, and they are very likely to be present in the soil of unpaved streets on account of the accumulation there of animal refuse. It is suspected that soluble nitrates have much to do with the self-corrosion of lead pipe.

Preliminary Examinations of Soils

One of the first things done was to examine about eighteen samples of soil from various parts of the city, mostly from excavations around water pipes. Some were taken from the middle of the business district, and some on the outskirts of the city. Of the 18 samples, 9 were from places where pipes had been corroded to destruction, and of these 9, 2 were from areas where pipes were thought to have been generally electrically positive to the earth, 3 from where they must always have been negative to the earth, and 4 from areas where the polarity was as likely to have been negative as positive. Of the remaining 9 samples, 7 were from places where pipes had been visibly corroded but not seriously, 2 being from positive and 5 from negative areas or regions outside the electric railway zone, while 2 more were taken from excavations where pipes had never been laid. Some were from positive and some from negative areas.

These first proximate analyses were made by leaching a little of the soil sample with distilled water, filtering, and testing the clear filtrate for the dissolved chlorides and sulphates. The sulphate radical was found in every single sample, indicating its universal distribution throughout the soil of the city.

It is very significant indeed, that wherever a cast iron pipe had been corroded to destruction, whether near an electric railway power station or a mile or two distant from it, the soluble sulphates of both calcium and magnesium were invariably found in the soil close to the pipe.

Sometimes these salts were so observed in crystal form, actually in contact

with the pipe. The presence of salt crystals in contact with the pipe can only mean that the ground water in contact with the pipe was actually a concentrated salt solution.

First Experiments and Results on Cast Iron

A number of preliminary laboratory experiments were started, in May 1920, to explore the general possibilities of self-corrosion in a practical and convincing manner.

The first series was carried out with the object of determining with which salts and with what concentrations corrosive action was most pronounced. These were performed with the individual salts in dilute and concentrated solutions, and also with mixtures of all the salts, both dilute and concentrated. Pieces cut from new cast iron pipe, cleaned and weighed, were immersed in the solutions entirely without any impressed e.m.f. and heated to about 90 degrees C. Distilled water was added as evaporation proceeded. The experiment was continued for about 40 days, and during the first 25 days the solutions were heated for about 6 hours per day. At the end of 40 days the pieces of iron were taken out cleaned and weighed.

The metal surface exposed for corrosion on each sample varied between 3 and 4 square inches, but this difference probably had very little effect on the total corrosion, since the action was chiefly localized on small areas in the surface of the iron. The results of tests with mixed salts were for the most part not so marked, and for the sake of brevity have been omitted. The results were listed in the order of the magnitude of corrosion, and the concentrated solution of magnesium sulphate comes first, and the concentrated solution of magnesium chloride second.

Sodium carbonate (not bicarbonate) inhibited corrosion. This preventive action was also carried into the mixtures of salts where sodium carbonate was one of the ingredients, and doubtless accounts for the fact that the mixtures nearly all proved to be less corrosive than the individual salts. Even calcium carbonate was more corrosive than most of the sodium salts.

The calcium bicarbonate solutions stand sixth for the concentrated and seventh for the dilute solutions, in the order of magnitude of corrosion, showing the effect of the two extra hydrogen ions present in each molecule of the bicarbonate, in aiding the solution of iron. The sulphates and chlorides of magnesium and calcium head the list. Ordinary red rust appeared first in the dilute solutions, but the more concentrated solutions gave the greatest amount of corrosion.

The corrosion in almost all instances was accompanied by incipient graphitic pitting. Some of the pits were easily dug out with a knife to a depth of nearly 1-16 in. This characteristic pitting differed in no respect except size, from the pitting on corroded city water mains.

The material removed from the samples of cast iron was usually a mixture of ferrous and ferric iron compounds. The iron first goes into solution as ferrous hydrate and is oxidized later into the ferric hydrate, oxygen from the air causing the transformation.

The general conclusion from this set of experiments is that the salts dissolved in the soil of Winnipeg and vicinity will corrode cast iron of themselves, without any assistance from stray current.

To be Continued

AUXILIARY CONNECTIONS TO THE MUNICIPAL WATER WORKS

The Toronto Branch C. M. A. states:—

"Our attention has been called to certain regulations passed by the Provincial Board of Health under the authority of Section 8 of the Public Health Act, of May 27th, 1921, re the connection of auxiliary railway, factory or other water supply including fire protection system or apparatus, with a municipal water works system the distribution of which is for public, domestic or general use.

The Order-in-Council which is dated 6th July, 1921, requires that in practically every case where either a sprinkler equipment or even stand-pipe is connected with a public main, dual check valves will have to be installed before the 6th of January next.

Should Plumbers Have Show Rooms?

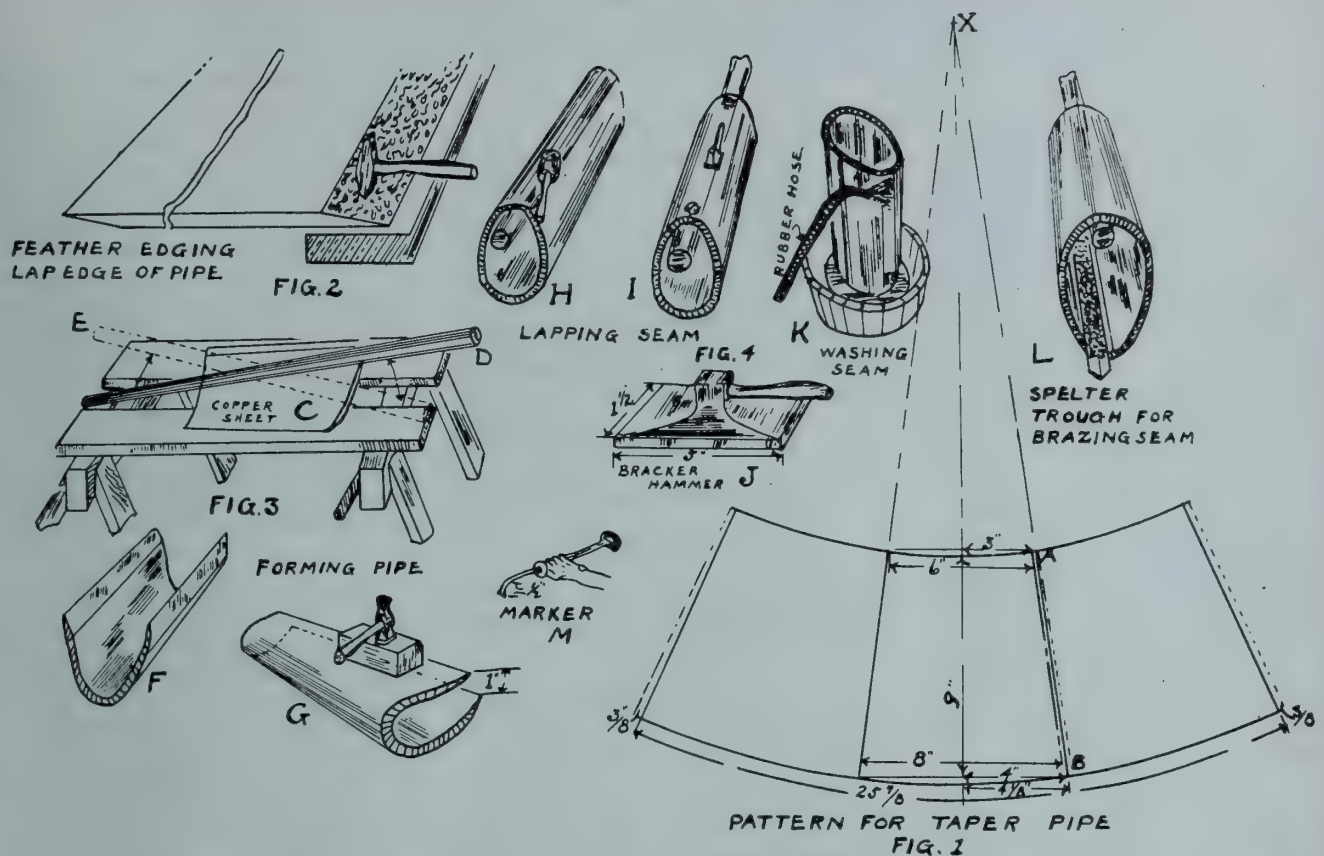
In the November 1 issue of Sanitary Engineer appeared an article entitled "Wholesaler As Plumbing Merchandiser," in which the views of an Ontario manufacturer of plumbing supplies were given on this subject.

This is a matter which interests every reader of Sanitary Engineer and in order to conduct a thorough discussion of the matter and bring out every angle of the question YOUR OPINION is wanted by the editor. Your name will be withheld if desired.

There will be much helpful material for you in this discussion and you will be well repaid for the time spent on writing us what you think of the points brought out in the article. Read the article and send your opinion NOW.

Making Taper Joints of Sheet Copper

By O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Missouri.



COPPERSMITHING is a very old craft dating back to the ancients; how many years nobody knows. In the modern world of affairs, the copper is used in a multitude of places and purposes, so that the coppersmith has a distinct profession of his own. We may call it a profession in that to work copper requires a peculiar knack gathered only by experience. As far as technical knowledge goes, there is not much to it. The common sheet metal worker in this respect has much more complicated laying out and calculation to do than the ordinary coppersmith.

Still, the coppersmith guards his bit of knowledge with a secretiveness and jealousy as though it were studded with precious diamonds. Much of this jealous guarding of trade features is uncalled for, since there is nothing to coppersmithing that nobody else can learn, provided they have the scope of practice and the use of the tools. Coppersmithing in fact, is a trade or a service that belong to the public and because of the extreme secretiveness and non-helpfulness adopted by the majority of coppersmiths, many of its own workmen are only partially skilled. When the diffusion of their trade knowledge in the shop and in friendly gatherings would be more general, there is not a question of a doubt that a still higher standard could be obtained and maintained for the coppersmith. But this does not mean

that he is superior to the regular sheet metal worker, because in fact the sheet metal in its many branches absorbs coppersmithing, and anyone of 6 or 7 branches of the sheet metal craft closely approaches engineering knowledge, if not enters it in many respects.

The main feature of coppersmithing is hard work with the hammer and mallet. By the gradual application of the hammer, the eye and the feeling of the individual become developed to a point where he works the metal almost unconsciously. Under this condition he is much like a person reading a book, as all the letters stand out and form words, and in the same way the places that require raising or hollowing out show themselves to a coppersmith, and he applies his mallet or hammer in such a fashion that the metal is worked easily and quickly.

Without this particular knack an outsider can worry around with a piece of work for days and then not make a decent job of it, while a coppersmith of experience can form the metal, by a few applications of the hammer or mallet, so that the metal seems to form right under the gaze of his eye. It is not all coppersmiths who are so adept, but there are some who are skilled to a very high degree, and it is amazing what they cannot raise up out of a flat piece of copper.

So we shall take up a series of articles

dealing with the main features of coppersmithing. And in treating these various problems, reader must understand that coppersmithing varies in practice in different shops in certain localities and for different purposes. Certain practices are observed in chemical plants, other practices are observed in marine shops, and still other practices are observed in railroad shops. But all follow a similar principle and their variation consists only in detail possibly of action and established practices of the shop.

In figure 1 we have the laying out of a taper joint. Let us say the copper is to be $\frac{1}{4}$ inch thick. So a working drawing is made to conform with the neutral axis of the metal. This neutral axis is assumed to be directly in the centre of the plate. In the rolling of a plate there is a line somewhere in the thickness that neither lengthen nor compresses. Just exactly where this line is located no one knows, although it is always assumed to be in the centre of the plate.

Observe that in rolling a plate, say a quarter inch thick the throat will stick. Now the metal is such that it compresses much harder than it stretches, and therefore, it is safe to conclude that the neutral axis line is not exactly in the centre. Then again the pliability of the metal must be considered, as soft and brittle spots will change the line of neutrality. However, these adjustments may take place, somewhere within the

thickness of plate as the neutral axis. So in this case we have a pipe that is 8 inches on the inside of the bottom of diameter. This will make a radius of $4\frac{1}{4}$ inches from the centre to the axis line or a neutral diameter of $8\frac{1}{4}$ inches. The side lines as B-A are extended to an apex until they meet as at X. From this apex we set our dividers using the side neutral axis A and B as radius, we describe the upper and lower arc. On this arc we measure off the circumference required for a pipe $8\frac{1}{4}$ inches in diameter, which in this case figures to 25% inches. The workman will remember that to figure the circumference we use the number 3.1416 times the diameter. This is the safest and reliable rule and should be used by all workmen. From the points thus established, lines are drawn to the apex and this also cuts the upper arc and average that circumference to correspond with the required diameter. Edges for feather edging and brazing must be allowed extra.

The next step is to feather edge the lap joints and this is done as in Figure 2 by drawing the edge out with a stretching hammer as shown. When this is done some coppersmiths use the method of forming as shown in Figure 3, where a sheet of copper representing the pattern is laid over some planks set on trusses. Then by means of a shaft 2 or 3 inches in diameter as at B, the one edge is raised and let fall thereby bending the metal. After this the other end E is raised and let drop which bends that side of the metal. This process is continued until a shape as at F below Figure 3 is produced. Some shops may have other methods for forming their sheets, and still other shops may have different methods.

After metal is formed as at F, it is then laid closer as in sketch G, so that the edges are about 1 inch apart or so. This is best done by means of a hammer and block of wood, so that the copper is kept smooth and will not be stretched unnecessarily. After this the pipe is worked as in Figure 4, by placing it on a stake or shaft as at H and working the edge over the mallet. When both edges are worked over, a copper rivet may be put in each end to hold the seam in place when preparing for bracing. In future articles we shall show other methods of holding the edge without riveting. But in this case, the joint is riveted and we have found quite a few workmen follow this practice because rivets are brazed in and hammered out afterwards, so there is no objection to their use. After this a bracket hammer as at J is used for smoothening out the edges on the stake, so that all buckles and unevenness are worked out.

After the edges are prepared, the pipe is set in a tub or on some blocks on the outside and the hose is turned on the edge, thus washing all dust and foreign matter from the seam. This joint is then ready for brazing and it is laid on a stake as at L and the workman scatters some borax along the seam and rubs it in with his thumb. The moisture, still in

the joint from the washing, sort of aids in the cleaning the metal and also helps in holding the borax in place. After this a small trough bent to a V-shape as in sketch L, is filled with some spelter and borax mixed. This is run into the pipe and tipped over on top of the seam, which prepares everything for brazing.

VILLAGE WATER SUPPLY CUT OFF BY ACCIDENT

St. Catharines.—The village of Port Dalhousie will be without its regular water supply until after the close of navigation, in consequence of the water main from St. Catharines being torn out by the rush of water when the steamer Robert R. Rhodes of the Hull Company, Montreal, upbound, carried away the headgates of Lock 3.

Questions and Answers

CIRCUMFERENCE TABLES FOR TINSMITHS

Question:—Will you please provide me with a circumference table for use in tinshops.

J. J. Boyley, Peterboro, Ont.

Answer:—Following you will find a copy of Circumference Table as generally found in tinshops. This type is small for shop purposes and can be kept in a handy lace, probably pasted on a sheet of cardboard. We would suggest that tinsmiths nail up this chart and table of allowances over their work bench.

CIRCUMFERENCE TABLE			
Dia. of parts of an inch For Pipe Work			
Dia.	Cir.	Dia.	Cir.
1-16	3-16	Dia. in full inches	
1-8	3-8	Dia.	Cir.
3-16	9-16	3.	9. 7-16
1-4	3-4	4.	12. 1-2
3-8	1. 3-16	5.	15. 3-4
1-2	1. 9-16	6.	18. 7-8
5-8	1.15-16	7.	22. -
3-4	2. 3-8	10.	31. 7-16
7-8	2. 3-4	8.	25. 1-8
1.	3. 1-8	9.	28. 1-4
2.	6. 1-4	20.	62.13-16

TABLE FOR ALLOWANCES on large end of pipe

Gauge	Thickness inches	Allow to big end
10	9-64	1.
11	1-8	13-16
12	7-64	11-16
14	5-64	1-2
16	1-16	3-8
18	1-20	5-16
20	3-80	1-4
22	1-32	3-16
24	1-40	full 1-8
26	3-160	1-8

Rule:—To find Circumference of pipe 28.3-8 inches in diameter; add different cir. as 62.13-16 for 20 inch; plus 25.1-8 for 8 inch; plus 1.3-16 for 3-8 inch pipe, and you have 89. 1-8 inches as cir. All edges must be allowed extra.

Catalogues and Booklets

FIREPLACE FITTINGS

"The fireplace is an altar for sacrifice, for worship, for refuge, for love."
"Make, therefore, this altar the most beautiful place in the home."

With the above epigram in a prominent place on the fly-leaf, the Enterprise Foundry Co., of Sackville, N.B., have placed in the hands of the trade their Catalog No. 15, on Fireplace Fittings and Open Grates.

The new booklet presents in a quietly-refined manner, the various models and types of Electric grates; Open fire grates; Portable Basket grates; Andirons; Dome and Common Fireplace Dampers; Ash Dumps, and Pit Doors. There is also a closing reference to the Enterprise lines of stoves, ranges and furnaces.

Full details of these products as to size, weight, finishes, and special features are not overlooked. The various illustrations are clear-cut, and give a more or less accurate impression of the appearance and usefulness of these many fireplace appliances.

BANNER STOVES

Catalog No. 8, a new work on stoves and ranges, has been placed before the fall trade, by the Galt Stove & Furnace Co., Ltd., of Galt, Ont. The book is neatly bound, with attractive coloring, and contains a large number of comprehensive illustrations which practically place the products before the mental vision of the dealer. Adequate description as to sizes and types is also given, while in addition to these various details, some special rules are presented governing the setting up of stoves and ranges. This list of regulations is especially useful, both to the dealer and customer.

Among the "Banner" lines catalogued in this issue are the Banner Combination in various styles; the Dunamel Combination; the Banner Chieftain; the Rexall Banner; the Banner Blunose; the Canadian Banner; the Eclipse; the Monarch Cook; the Economy; the Art Banner; the Colonist; the Dandy; the Rambler; the Cyclone Banner; the Kitchen Heater and the Banner Compact Cook. Many of these stoves and ranges are made in different models.

Heaters for various purposes, kitchen, parlor and so on, also occupy a prominent place in the pages of this book. Among these types mentioned are Tortoise Heaters; the New Maple Banner; the Highland Oak; the Premier Oak; the Victor; the Dandy; the Strathcona; the Marvel; Colonial; the Acme Farmers Boiler, and the Champion Agricultural Furnace.

The Galt Stove & Furnace Co., have announced that a separate catalog will be issued covering their line of furnaces. This firm will also mail a special booklet on the Majestic line of coal chutes and building specialties.

ENGINEERS LISTEN TO DRAINAGE EXPERT

The Toronto branch of the Engineering Institute of Canada, heard an address from A. G. Dalziel on his experiences in connection with the laying of 145 miles of sewers in Vancouver. Mr. Dalziel explained the peculiar problems and the evolution of the drainage system in the British Columbia metropolis, and brought out a number of points which are new or recent in modern drainage practice.

Small Set of Books for Plumbers

Proper Bookkeeping in the Plumbing and Heating Shop Commences with Small Set of Books for the Small Operator, Allowing Expansion as Business Grows—Valuable Information Based On Findings of National Trade Extension Bureau

(Continued from last issue)

ARTICLES in previous issues dealt with the details of various entries. They also told how the different forms were to be handled at the close of the month, and what was to be done with the various totals. Each of the sheets, Sales Journal, Purchase Journal, and Cash, were treated in a different article. For this reason the information given may not have been clearly understood by every one. This article will be in a large measure a review of part of the articles that have been previously published.

Bear in mind, first of all, that if each book, that is, Sales Journal, Purchase Journal and Cash Book, does not balance, your month's work will not balance, and you will not have the absolute proof of your work that this system is intended to give you. Add together the footings of all Debit columns, and the footings of all Credit columns, and see that both resulting totals are the same. Next carry forward the totals from the preceding month, being sure to get each total in its proper column. Add these and the totals for the month together, and make another proof of these figures. Doing this from month to month gives you at the end of the year totals of each of the different accounts.

A small business can be handled in this way by not going any further. Now let us see what these totals tell us. Taking our Sales Journal first: the first column gives us our total sales; the next column the total amount of Cash Discount we have set aside, in case we are following this method; the next two columns show the cost of Material and Labor used; the next column tells you the amount of Overhead you have applied to your sales; following this is a column showing the amount you have received for Truck Service; then comes a blank column that can be used for any special item of cost that appears frequently and for which a separate column has not been provided.

Miscellaneous Job Accounts

In the Miscellaneous Job Accounts you have the total of all other items of costs that do not have a special column. The total of this column should be separated into the various items listed. For instance, suppose you have charged in this column "Permits," "Transportation and Board," and "Incidental Expense." Beginning with the total for the first month take a piece of scratch paper and go through the month's entries adding together all of the separate items. See that the total of all the items thus added equals the total amount of that column. Underneath this total

list one under the other the name and amount of each. Do this each month and add the total for the month to the total to date for the preceding month. At the end of the year you will then have the grand total of each item for the year. The next two columns "Gain" and "Loss" show what your total Gains and Losses for the year have been. The difference between these two columns shows the Net Gain or Loss as the case may be.

The column "Sales," shows you the total business of everything on which there was Labor sold, that is, everything except "Store Sales."

The columns under Store Sales give you the same information as above regarding your Store Sales. The last column tells you what your total sales in the store were.

Purchase Journal

Your Purchase Journal works out the same way as the Sales Journal. The

first column tells us what your total purchases of all kinds were. The next column tells you how much Freight has been allowed to you on your invoice purchases.

The next two columns, headed General Ledger, are to be used in making adjusting entries where a General Ledger is kept. Where one is not being kept, extend in the column headed Debit, all purchases covering Equipment and any items that are not an expense. Sometimes the proprietor makes purchases from the supply house for personal use and these are included on the invoice for purchases for store. In such cases enter the cost of these purchases for the proprietor in the General Ledger Debit column.

The Credit column will be used very seldom where no General Ledger is used. The only occasion for its use would be where it is desired to make an allowance in a customer's account as a

MONTHLY TRIAL BALANCE

	OPENING ENTRY			
	January.		February	
ASSETS	Debit	Credit	Debit	Credit
Cash in Bank	\$ 125.90		\$ 159.02	\$ 540.10
Petty Cash				
Customers Ledger Controlling Account	3882.02		3899.32	34.75
Shop Equipment	300.00		300.00	
Office and Showroom Equipment	529.60		529.60	
Small Tools	100.00		100.00	
Automobile	600.00		600.00	
LIABILITIES				
Accounts Payable Ledger Controlling Account		513.20	548.57	1031.77
Notes Payable		1000.00		1000.00
A. Plumber Net Worth		5993.04		599.04
JOB AND CONTRACT ACCOUNTS				
Loss and Gain on Plumbing Jobbing				
Loss and Gain on Plumbing Contracts				2.58
Loss and Gain on Heating Contracts				
Loss and Gain on Store Sales				
Discount Earned				8.47
Cash Discount			1.63	
Material	1968.72		2394.72	3.28
Productive Labor			44.00	5.50
Permits				
Association Assessments and Bonds				
Freight, Express, Drayage				2.43
Transportation and Board				
Incidental Expenses				5.19
Overhead Expense				.75
Truck				
OVERHEAD ACCOUNTS				
Miscellaneous Office Expense				
Office Salaries			70.00	
Auto Expense				
Advertising and Donations				
Dues				
Interest				
Legal Expense				
Taxes				
Miscellaneous Store Expense				
Allowance to Customers				
Non-Productive Labor			11.00	
Insurance				
Rent				
Depreciation				
Tools				
Workmen's Compensation				
Miscellaneous Shop Expenses				
Total	\$7506.24	\$7506.24	\$8657.86	\$8657.86

matter of policy. By this we mean an instance where the customer complains of a charge solely because they think it is too high. You know the charge is correct but for special reasons you desire to allow something on the account to hold the customer's business. In such cases write the name of the customer under Name and under "For" give full particulars using more than one line where necessary. Do not enter any amount in the Accounts Payable column but instead use the General Ledger Credit column. Enter the amount of each allowance here and also enter it in the Overhead Accounts section under Miscellaneous Overhead Accounts putting in the amount in the Amount column and writing Allowance to Customers in the wide space to the left. The totals of these columns should be analyzed from month to month the same as instructed regarding Miscellaneous Accounts on the Sales Journal.

Productive Labor

The totals of the Material and Productive Labor columns show the total amount of each that has been purchased. Right here comes an important point, regarding Productive Labor. Each month you sell all the labor you purchase, because you close each one of your Workman orders, whether the job is completed or not. You enter in the Productive Labor column on the Sales Journal the cost of your Labor. For this reason the totals of the Productive Labor columns on the Sales Journal and Purchase Journal should be the same. If they do not agree it means that you have failed to charge your customers with all the Labor used on the jobs, or you have made an error in distributing your Weekly Pay Roll on the Purchase Journal. The above will not hold true of Material because of always having a stock on hand.

The total of the Truck column should be compared with the total of the same column on the Sales Journal. If the total on the Purchase Journal is greater than the one on the Sales Journal your truck is not paying its way, and you should endeavor to correct this.

Freight, Express and Drayage, the next column, shows the total amount paid out for these items. Deduct from this the total of the second column, "Freight Allowance," and you will know exactly what your freight and hauling cost you.

The "Miscellaneous Job Accounts" column corresponds to the same column on the Sales Journal. In this column you enter the items when they are purchased, and on the Sales Journal you enter them when they are sold. The total of the column on the Purchase Journal should be analyzed the same as instructed for the Sales Journal. Like the Productive Labor columns the total of these columns on both Purchase and Sales Journal should agree.

In the "Overhead Accounts" section the first three columns show the amount

spent for each of the respective items. You will note the second column is "Auto Expenses." This represents all expenses on pleasure cars used in the business while the "Truck" column takes care of the commercial car. The pleasure car is used by the proprietor in looking after jobs and general running around. It is impossible to make a definite charge to each job for its use, as is done for the truck, so all of the expense connected with it must go into Overhead.

The "Miscellaneous Overhead Accounts" column is for all items of overhead expense other than the three for which separate columns have been provided. Like the other miscellaneous columns, this column should be analyzed each month, and the total charged to each account should be shown under the total of the column. Every item entered in the four columns in "Overhead Accounts" section should also be entered in the last column, "Total Overhead."

The total of this column then tells what your expense of doing business is for the month, and the year to date. Be sure to compare this total with the sum of the two. Overhead columns on the Sales Journal. This is very important as it is by this means you determine whether or not the overhead percentage you are using is sufficiently high to cover actual expenses. If the total of the last column on the Purchase Journal is greater than the two overhead columns on the Sales Journal your overhead percentage is too low and should be increased.

Footings and proving the sheets for the Sales and Purchase Journals and Cash Book may mark the end of your month's work if you so desire where no General Ledger is used. However we strongly recommend that you transfer these totals to the Monthly Trial Balance Sheet as illustrated herewith. In the next issue we will take up in detail the figures shown on this trial balance.

Proper Ventilation With Little Heat Loss

Importance of Proper Ventilation of Churches, School-rooms and Theatres Being Taken Up by Research Bureau of American Society Heating and Ventilating Engineers — Method of Conserving Heat

THE PITTSBURGH Experiment Station of the United States Bureau of Mines is working in co-operation with the Research Bureau of the American Society of Heating and Ventilating Engineers on a number of important problems which affect each individual in his home life, in his place of business, and especially in those places where many people congregate, as in churches, school-rooms, and theatres. It is important to ventilate such places with sufficient fresh air to make everyone comfortable enough to be able to work at high efficiency. The circulation of excessive quantities of fresh air imposes a considerable cost on the heating system, therefore an efficiently designed heating and ventilating system introduces the least amount of cooled air consistent with proper conditions for health. In this connection the use of ozone has frequently been proposed and actually tried in a number of places. The ozone is supposed to deodorize and purify the air by the oxidation of organic matter and possibly by killing bacteria.

It is, however, a real question as to whether ozone can be introduced in quantities large enough to kill bacteria without producing very serious irritation of the throat and lung tissues. It is also a question as to whether harmful oxides of nitrogen are not produced simultaneously with ozone. Definite information is needed on this subject. The first step in obtaining such information is to work out methods for accurately determining the percentage of ozone and oxides of nitrogen produced for different types of ozone machines and to de-

velop suitable methods for determining the very small quantities of ozone and oxides of nitrogen that may be present in air treated with such machines. Analytical work of the highest precision is required. The gas laboratory of the Bureau of Mines Pittsburgh Experiment Station is now engaged on this problem, working in co-operation with the Research Bureau of the American Society of Heating and Ventilating Engineers which is housed in the same building.

After the chemists have worked out the methods of detecting and analyzing these small quantities of ozone and oxides of nitrogen, the next problem will be undertaken in a like co-operation of the two agencies just named working with the United States Public Health Service. Surgeons from this service are detailed to the Bureau of Mines for working on health and sanitation problems.

BATH HOUSE FOR CALGARY

Calgary, Alta.—A public bath house that will be modern, but will not cost any more than \$25,000, is the idea that Commissioner Samis has in proposing that the bath house be established as an asset of the street railway, the money to be borrowed from the depreciation fund of the electric light department.

City Architect Richards already has tentative plans outlined and will start at once to complete the plans for submission to the city council.

It is hoped to provide a pool at least 115 feet long, with dressing rooms at either end, and accommodation for 500 spectators, if possible.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May Be Referred to and Studied

Article No. 42 of Series Illustrations Nos. 47, 48

(Continued from last issue)
THE ENTRANCE to the pumping station is obtained by steps along the one side of the building, which provides for light and ventilation at the

same time and in cold climate same can be roofed over to prevent accumulation of snow, etc. Figs. 47 and 48 illustrate this. Fig. 48 shows the method of covering the building with rolled steel joists

and concrete and the location of the inspection chamber, used for cleaning out the mineral matter and screenings.

To be continued in the next issue
Of Sanitary Engineer

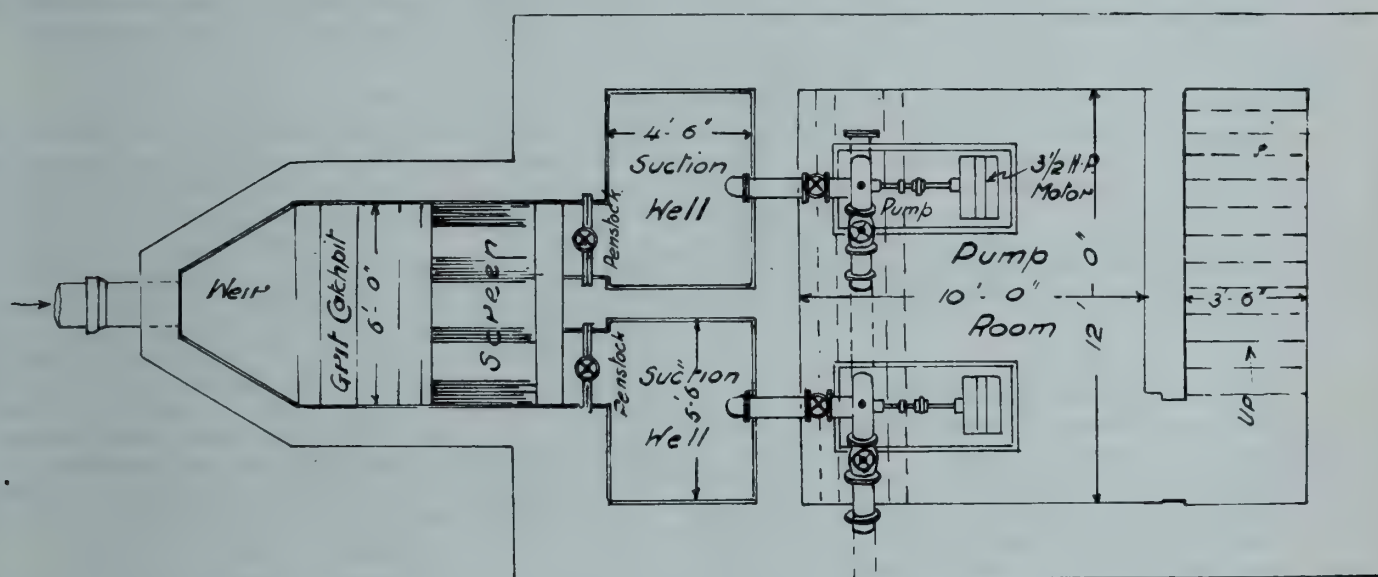


FIG. 47.

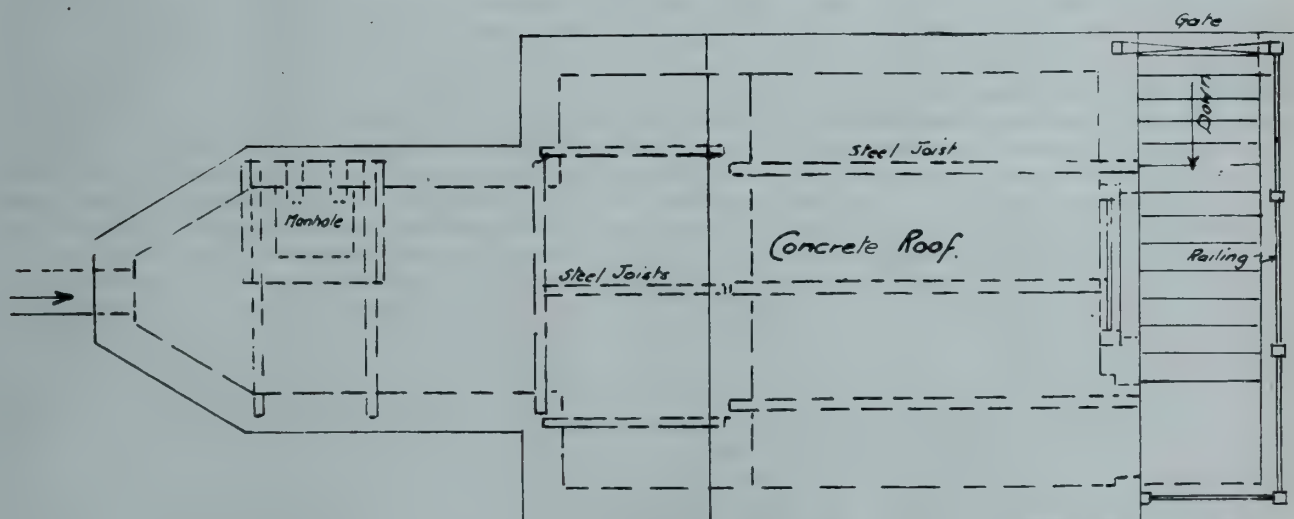


FIG 48

Sanitary Engineer

Plumber and Steamfitter of Canada

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No. 22

Science Aids Ventilation

ANOTHER indication of the manner in which scientific research is being called upon to help in solving problems of sanitation is found in the endeavors being made by the American Society of Heating and Ventilating Engineers to solve the ventilation question in public buildings and in the private homes without the usually attendant loss of heat and consequent drain on the heating system. The use of ozone which deodorizes and purifies the air by the oxidation of organic matter and the killing of the bacteria has been suggested but it is a debatable point as to whether or not ozone can be introduced in sufficient quantity to have the effect described without having a serious effect upon the throat and lung tissues of those in the building or room so treated. Competent chemists, and doctors and engineers are engaged on the subject at present and its outcome will be watched with interest.

A Severe Handicap

IT WOULD seem as though a distinct injustice was being done the brass industry of Canada by the interpretation of Customs officials put upon clauses 348 and 352 of the tariff regulations, under which the importation from Britain of large quantities of brass cartridge cases, fuses and other similar war left-overs cannot be made except in the category of manufactured product and subject to the 20 per cent. preferential ad valorem duty applied to such imports from Britain. This material is being sold in large quantities by the British Government War Stocks Disposal Board and is being sold as "scrap" brass. As such it is being imported into the United States, Germany and other countries, and to the brass industries of those countries comes a distinct advantage over the Canadian manufacturers who would be willing to purchase part of these huge stocks of brass but cannot do so advantageously. Certain Canadian importers on receiving notice that shipments of such material are being sold in bond in Canada for duty, have had them diverted to the United States. When this material has been worked into a finished product in United States plants, the article, on being exported to Canada, would then carry the 30 per cent. duty which applies on such articles imported to Canada from the U.S.

As an ordinary rule only virgin metal is used by the majority of Canadian brass goods manufacturers. This is due to the fact that in ordinary scrap brass there is considerable foreign matter which hinders the machine process and provides a serious danger to the machinery used. No such foreign matter is present in the bulk of the munition left-overs, as outlined herewith, and it would be a distinct advantage to Canadian brass manufacturers in lowering costs, if the Customs interpretation were amended to give

domestic industries an equal footing with foreign manufacturers as far as the securing of such material is concerned.

Liquidating Stocks

A FAIR index of the trend of general business conditions in Canada is given by the consolidated statement of the chartered banks. In this connection it is significant to note that commercial loans for the month of September show some slight increase over August but show a decline of \$177,000,000 in comparison with September 1920. While this statement would seem to confirm the objection recently heard, that banks were pressing too severely for the reducing of banking indebtedness, it really indicates a healthy condition in that it represents substantial progress in the liquidation of high priced merchandise stock. Until such stocks have been replaced with others which represent a fair price to the consumer and which bring a fair profit to the distributor and manufacturer, the process of readjustment will be impeded. Meanwhile shrewd business men are following the plan of moving out high priced stocks at replacement prices, thereby giving buyers confidence and hastening the introduction of stocks at prices on which the maximum amount of trading can be done with fair returns.

Business-like Methods

THE MERCHANT himself issues a bill for any debt owed him and according to law, before he can recover the amount due him he must show that he has made proper demand for that amount. It would save a great deal of the retail merchants' time if the Government adopted the same businesslike plan in connection with the income tax collection. Instead the government in collecting this debt requires the taxable party to make out his own bill and he is fined if he delays. If the bill was simple it would not be so laborious but there is a complicated series of calculations bristling with penalty clauses for mistakes. It would probably be an advantage to all concerned if the government merely secured a simple statement of income and exemptions claimed from each individual and made out their own bills taking responsibility for any mistakes made.

Caution is Required

AS WAS expected, the Government is again letting itself in for considerable abuse regarding the proposed regulations governing the marking of the country of origin on all imports. This is a very broad question and one which has many possibilities, some favorable but many unfavorable. Undoubtedly it would be useful information to a Canadian buyer to know what country had manufactured the prospective purchase. It would serve as an added protection against importations of cheap goods, the sale of which largely depends upon the close imitation of better grade articles, and it would also give the Customs Department an effective means of checking imports. On the other hand the regulations will probably occasion much difficulty among manufacturers of plumbing, heating and other goods which are exported to Canada. Some of these manufacturers have put forth some suggestions which bear more or less merit, one manufacturer suggesting that the Canadian Customs officials take a bond or certificate from exporters, covering their products and that these officials then accept the exporter's regular stampings or markings upon the articles themselves or upon their containers. In a number of cases exporters fail to see the value of the specific marking "Made in" when the firm's name and address appear on the goods. Another opinion is that the objectional features of the regulations will more than offset any advantage which may accrue from it.

Heating and Ventilating

Standard Furnace Installation Code

Protection Is Needed Against the Speculative Contractor Who Wants "A Heating Plant for Forty-Nine Dollars"—Warm Air Pipes Need Heavier Covering—Larger Cold Air Returns Recommended—Importance of Fuel Economy

"A MATTER which interests all of us and which is of vital concern to both installer and manufacturer is the subject of Installation Codes" said a speaker at a recent convention of warm air furnace men.

The Warm Air Heating and Ventilating Association is not opposed to such legislation but has felt that in a desire for immediate state codes there is danger of not having one up to date, workable, fair to all. We have not been indifferent to the subject, for as far back as 1917 a committee presented a recommended code. This, however, was not an effort to legislate but rather the best practice at that time. Much of it is alright to-day. The Committee in presenting their report said:

It occurs to your Committee that a code, to be of any benefit to the public should cover practically every phase of furnace installation. Yet we have not endeavored to cover all phases of the furnace installation in this code because that would make it rather cumbersome, but we have covered enough of the whole matter so that anyone can write from this, with such changes as local conditions may demand, a code that will be of protection to the furnace installer and to the public in general and also protect the installer against the impositions of a shoddy, indifferent contractor.

This is the thing that we want to look out for, especially those of you who are doing business in cities where you must depend largely upon the speculative contractor for your volume of business, for a speculative contractor is not looking for size of furnace, size of registers, size of cold air pipe or anything else. What he wants is a heating plant for "forty-nine dollars." His interest ends there.

Here is a basis that puts you in a position to combat the tendency to depreciate the value of warm air heating systems in the minds of the public by eliminating the use of small undersized furnaces, small pipes, small registers, inadequate cold air supply and all such things.

I desire to call the attention to Bulletin 120, published at the University of

Illinois. It is undoubtedly the most valuable and best that has been issued on our Warm Air Furnace Research activity. If it is technical in part much of it is simple and plain and simple enough for all of us to understand and contains much of interest in connection with the practical, commercial side of business.

It would be extremely bad taste, to say the least, if I were to assume to tell you how your installations should be made, and I have no such thought or intention, but perhaps I may casually refer to some things that have developed and make some observations without offending your experience and recognized ability and goodnaturedly urge you to take advantage of what Research Work has developed or proves and publishes in the future for the advancement of warm air heating.

Warm Air Pipes Need Heavier Covering

For instance, there appears to have been so much misunderstood as to what the Research Engineers recommended as to covering furnace leader pipes that I made a statement in Pittsburg which I wish to repeat to you. Neither Professor Willard, nor anybody else that I know of, is opposed to the covering of warm air furnace pipes, but they do recommend that furnace pipes be covered sufficiently, that is with enough insulation to make such a covering efficient and save the 5 per cent fuel loss which occurs when simply one layer of thin asbestos paper is used and which has been demonstrated as worse than no covering at all. The consumer has seen furnace pipes covered with thin asbestos paper for so long, that it is quite probable they would not think an insulation complete if all covering was left off the leaders, but I am sure they will not object to a much heavier covering than has been generally used, in the past, neither will the fire insurance companies find fault with such an improvement. In Bulletin 120 Professor Willard says:

"The results of these tests present very convincing evidence against the use of thin layers of asbestos paper covering on bright tin pipes. The heat loss was 62 per cent greater with one thickness of the paper covering a bright tin

pipe than when the same pipe was left uncovered. The importance of this loss may be seen by the fact that it results in a waste of 5 per cent or more of the coal consumed in the average house furnace."

I would like also to incidentally refer to the desirability of larger first floor runs.

Larger Cold Air Returns Recommended

There also seems to be an opportunity for better practice in the sizes of the recirculating duct. The other day a piped job installation came to my attention in which the recirculating duct was 130 per cent of the outlets. We used to think that when using inside air we could get by fine with 100 per cent; then experience moved this ratio up to 120 as ideal, but there is a warm air heating plant laid out by engineers who know and who are unprejudiced, with an inside return air duct 30 per cent larger than the outlet.

I am told that the register temperatures of this installation will be found around 140 degrees, but there will be plenty of air at this temperature and that the result is going to be very pleasing indeed to the owner. The answer seems to be plain. Use larger cold air returns. I know of one installer, whose practice it is to hold a handkerchief over the return grille and if enough velocity develops to move the handkerchief, he concludes the return air capacity of the plant is too small.

We have all heard so much of the necessity of a good chimney, or in other words, a good draft and have wished for them so often without avail, that we almost accept a poor draft as a necessary evil. If there is one thing that a code should contain it should be something that will assure proper drafts, for if they are obtainable, by any way on earth, half our heating problems will be eliminated.

In Germany, chimneys must be right and unless built according to Government requirements no installer can be held responsible for the result obtained from the heating plant proper. It would

(Continued on page 25)

Home Sanitation



Sanitary Engineers should derive
For the story of the progress of
happier homes—of an improved
thousands of kiddies saved every
It pays to think about them
actually sells health with every
sales talk will ring true, and insp

*Naturally the best plumbers ins
the increasing popularity of Por
quality is built into every piece—*

*In 1880 an average infant
death rate per 1000 was 164.*

*In 1921 an average infant
death rate per 1000 was 72.*

*The figures given in the diagrams
Provincial Department of Health*

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Winnipeg Office:
405 TRIBUNE BLDG.

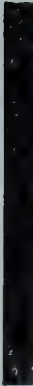
When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER.

Lowers Death Rates


e satisfaction from their work.
c sanitation is also the story of
rd of living—of the lives of
These are facts—not fancies.
the plumber knows that he
plumbingware he installs, his
vidence. Profitable sales follow.

*y the best materials. Hence
products. For the same rugged
ter day—year after year.*

n an average of all available



*In 1880 there was one bath
to every 40 persons.*



*In 1921 in Toronto there
is one bath to every 10
persons.*

g. Company, Limited

Head Office:
YAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal—Beaudette and Cole, plumbers, have dissolved partnership.

OBITUARY

Hamilton—J. F. Cummings, plumber, is dead.

George R. Woodburn, master plumber of 254 Victoria Avenue, Westmount, was instantly killed when his automobile was struck by a train at a Montreal crossing.

Charlottetown, P. E. I.—Kingford J. Murray, treasurer of the firm of Murray & Dugdale, plumbers, Water street, Haverhill, Mass., is dead.

Kingford J. Murray was born in Cape Breton, N. S. May 5, 1868. He attended school in the town of his birth and came to Haverhill 32 years ago. He entered the employ of the late A. W. Cramm, who conducted a heating and plumbing store on Merrimac street for years and was foreman for Mr. Cramm. He held that position for 10 years and then entered into business with James E. Dugdale, 49 Water street, the firm being known as the Murray & Dugdale Co.

PERSONAL

Allan Lemon, a member of the firm of Lemon & Sons, plumbing and tin-smithing, met with an unfortunate accident. While cranking his automobile, he had the misfortune to have his wrist fractured. He is getting along nicely.

MOVE PLUMBING SHOP

Collingwood, Ont.—Caslakes' Plumbing Shop has been moved to the Carmichael Block, Ste. Marie St.

OPENS NEW OFFICE

The Toronto Plumbing Supply Company has opened an office and warehouse at 1218 Dundas St. W. Mr. Atkinson is the manager.

READY TO INSTALL PLUMBING

Kingston, Ont.—Lemon & Sons, plumbers, have completed the work on the drains at the new "Jock Harty rink" at Queen's University and are now ready to install the plumbing as soon as the building is closed in. The rink will be equipped with the latest plumbing appliances.

TO VOTE ON WATERWORKS

Port Credit, Ont.—A by-law for the construction of a waterworks system in

the village will be submitted to the property owners next New Year's Day. Before the by-law is submitted public meetings will be held to allow full discussion. The cost will be from \$100,000 to \$150,000.

HOUSING SCHEME PROGRESSES

That the housing scheme is progressing favorably at Hamilton, Ont., is indicated by a recent report which states that requests for loans for houses totaling approximately \$100,000 in value have been received.

CONTRACTS AWARDED

Amherstburg, Ont.—In connection with erection of high school costing \$65,000 for High School Bd., plumbing and heating contracts are placed with Ray Ryan, Park St., Amherstburg.

Montreal, Que.—W. J. Barber Co., 91-A St. Genevieve St., have contract for main sewer for hotel costing \$8,000,000 for Mount Royal Hotel Co., 422 Drummond Bldg., 511 St. Catherine St. Contract for cast iron pipe is placed with Canadian Iron Foundries, Ltd., Mark Fischer Bldg., Victoria Sq.

SMITH FALLS MAY PIPE WATER FROM BASS LAKE

Renfrew.—The Provincial Board of Health has ordered Smith's Falls to install a system of filtration in connection with the waterworks plant, and the Town Council, after having a Montreal engineer report upon filtration will now have a Toronto engineering firm report upon the piping of a high quality of water from Bass Lake, a distance of seven miles. The latter proposal will be given the preference should the cost not be found prohibitory.

CUT OFF THE TOWNSHIP

Reporting to the Board of Control, Toronto, on several applications by the township for sewer connections, Works Commissioner Harris stated that practically all the agreements entered into between the city and township have had stipulations that no storm water should be permitted to enter and that this provision has been violated.

"I therefore recommend that until the township agrees to sever all these connections and comply with the agreements, no further drainage facilities be afforded."

The board concurred.

WESTERN ONTARIO NEWS

The contract for plumbing, heating and ventilating system for new 42 room school at Walkerville, costing \$500,000 has been awarded to the firm of Drake, Avery & Co., Hamilton.

* * *

John McDonald of Vienna, Ont., is preparing plans for new \$4000 residence and wants prices on heating and plumbing.

* * *

J. V. Horne, 50 West Ave., St. Thomas wants prices on plumbing, heating and electrical work for two new dwellings to cost \$6000.

* * *

Plans for the new fourteen roomed school at London, Ont., will be prepared by Architect L. E. Carrothers of the Board of Education. Steam heating is planned with complete modern lavatory system. Work will be commenced as early in the spring as possible and will cost \$175,000.

* * *

Noble and Rich of London, Ont., were awarded plumbing and heating contract in connection with remodelling of office building for Dr. L. S. Holmes.

* * *

Plans are being prepared by City Engineer Harry Brazier of London, Ont., for new sanitary sewers for Wellington Road, South London to cost \$250,000. In addition he plans to go ahead immediately with a storm sewer system for the Pine Lawn suburb to cost \$1175,000.

* * *

Williams and Roberts were awarded contract for plumbing and heating for two new dwellings to cost \$14,000 for Hyatt Bros. at London, Ont.

* * *

W. Blackmore, Princeton, Ont., wants prices on hot air heating, plumbing and electrical work for new \$15,000 office building.

* * *

Plans are to be prepared for the installation of sanitary conveniences in the down town station at the London and Port Stanley Railway at London, Ont. Philip Pocock chairman of Commission.

* * *

Plans are being prepared for a new plant at Chatham, Ont., to make ice cream and also supply the city with ice, by Silverwoods Limited of London, Ont. The estimated cost is \$100,000.

* * *

Tenders will be received until December 15 by J. W. Gledhill, Benmiller, Ont.,

for a new three roomed school to cost \$25,000. Prices wanted on heating and plumbing equipment.

* * *

Plans for a new \$8000 bungalow are being prepared for Harold White, 514 Dundas St., London, Ont. Prices wanted on hot water heating, plumbing and electrical equipment.

* * *

R. F. Smith, Dutton, Ont., is preparing plans for new \$5000 residence and wants prices on heating, plumbing and electrical equipment.

* * *

Plans for a new waterworks pumping station and dam are being prepared in connection with the new \$1,500,000 refinery to be erected at Petrolea, Ont., by the Peninsular Sugar Co.

* * *

Negotiations are in progress at Walkerville, Ont., for the purchase of the plant of the Canadian Detroit Lubricator Co., by Colonial Motors Limited a new \$1,000,000 firm

* * *

J. A. Mundy, sanitary engineer and tinsmith at Harriston, Ont., has purchased the McCready Block.

* * *

Scott Bros. of Forest, Ont., have been awarded contract for installation of new hot air heating system in the public library.

* * *

Tenders will be called shortly for new \$10,000 church at London, Ont., for the Hill Street Baptist congregation. Prices wanted on hot air heating, and electrical work. J. Irons, 531 Nelson St., Chairman Building Committee.

WATER BY-LAW DEFEATED

Goderich, Ont.—A by-law, voted on to provide \$55,000 for improvements to the municipal water system, was defeated, the vote being 78 in favor and 305 against. The principal feature of the proposal was a filtration and chlorinating plant, which was planned in accordance with the demand of the Provincial Board of Health.

ADDITION READY FOR

THE NEW WATER PUMPS

Ingersoll, Ont.—The extension to the pumping station west of town has been just about completed, and it is expected that within a couple of weeks the two new electric water pumps will have been installed. The pumps are being made by a Galt firm. In fact they have been made and tested. The piping is coming from Hamilton, and it is expected will soon be tested. Cement abutments are to be placed under the two new pumps. These are being installed in addition to the two pumps already there, and provision has been made for a third new pump at any time it is desired. This will greatly increase the efficiency of the pumping station. It is understood that one of the pumps are to be set aside for fire purposes only.

A. H. WHEELER JOINS

CUNNINGHAM & HILL LTD.

A. H. Wheeler who for the past five years has represented The Good Mfg. Company of New York in Montreal and Eastern Canada has joined the sales staff of Cunningham & Hill Ltd., Toronto to which firm he will represent in the same territory calling on the plumbing trade. Mr. Wheeler is said to have had considerable experience in the plumbing specialty business.



A. H. WHEELER

Who has joined Cunningham & Hill, Ltd., Toronto, and will call on the plumbing trade in Montreal and Eastern Canada, in which territory he formerly represented the Good Mfg. Co., of New York.

WATERWORKS AND SEWERAGE

Almonte, Ont.—Plans will be prepared for waterworks system to cost \$300,000 for town. James Porter & Redfern, Ltd., Consulting Engrs., Excelsior Life Bldg., Toronto.

SEWERS DISPUTE GOES TO BOARD

Toronto-York Township Council is in hopes of at last getting the vexed sewerage question settled. For the thickly populated sections of the township there is only one outlet for sewerage, and that through the Toronto mains.

On November 21 the Ontario Railway Board will hear the township's case and may compel Toronto to take care of the township sewerage. There is a feeling in township circles that Toronto will grant nothing until it is forced to do so. The township will endeavor to make arrangements with the city to look after all its sewerage, but, failing this, will likely agree to divert the storm water if the city will take care of domestic sewerage.

The city claims that existing mains are not large enough to take care of all the township sewerage. Township engineers were yesterday instructed to make a thorough survey and collect data to disprove this statement before the Railway Board.

\$18,000 FOR TEMPORARY HEATING PLANT

With as much grace as the circumstances would permit the Toronto City Council accepted the inevitable in regard to the live stock arena. The recommendation of the Board of Control to spend \$18,000 on temporary heating and otherwise get the building ready in conformity with the agreement was approved, but not until the members of the Board and directors of the Royal Winter Fair were harshly criticized.

STANDARD FURNACE

INSTALLATION CODE

(Continued from page 21)

be an excellent investment to educate the entire public as to the value of good chimneys, and see that they come to know how much a good flue has to do with the capacity and efficiency of a warm air furnace. A good flue is equally important to the boiler and stove manufacturer. Better chimneys can be secured, if we not only pray for them, but work for them.

To Short Testing of Individual Warm Air Furnaces

One thing that will receive early attention is casing diameters, as it is believed there is need of correct information as to their proportions and room for improvement in that direction. Our Research work is now down to subjects that will have a direct bearing on the commercial side of the business. This naturally will be more interesting to installers than has been the work of obtaining equipment and necessary engineering data.

A few years ago, economy in fuel was not taken very seriously as an argument in favor of any kind of a domestic heater, but conditions have changed and any saving that can be made in the fuel consumed now attracts the customer. Someone has said that we have been living in a period of extravagance and that the time has come when economy practised not from choice but from necessity.

Blower Fans Increase Heating Capacity

I hold no brief for any particular fan or blower for use in connection with domestic heating, but the preliminary experiments with that accessory have not only been extremely interesting, but show some remarkable results, and were I an installer I would feel justified in giving the fan or blower careful consideration.

There is no question, but what they do increase the capacity of a furnace very materially and very promptly and that the initial cost as well as the expense of operation, are both within reason. They are neither intended or necessary for continuous use.

As a recognized authority stated, "If a warm air heater and its installation could be more perfect there would be no occasion for a fan, and while it should not be considered as a cure-all it would be found a very valuable accessory, which at present is being developed along lines that will make its use practical."

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PRICE developments of varying importance are again prominent on current markets pertinent to plumbing, tinsmithing and steamfitting supplies. Changes involving a decline in quotations appear on bar iron and steel; soil pipe and fittings; eavestrough; conductor pipe; conductor elbows; galvanized siding and shingles; "S" wrenches; corrugated sheets; Dart unions, and Canada plates. Other price revisions to a lower level cover certain lines of force cups; galvanized vent pipes; the Penberthy line of brass valves; while a change in the differential between Queen's Head and Fleur-de-Lis galvanized sheets brings quotations on Queen's Head lower by 25 cents per 100 lbs.

The recent easier tone on the steel markets generally, is reflected in the varying reductions on bar iron, and the declines on corrugated. An easier tendency has also developed in primary market circles on tin plates. On the other hand, the range boiler quotations are being well maintained; the incentive to price-shading on these products having been neutralized. The trend of the lead markets is toward improvement. Brisk activity remains in radiator circles; with many reports of fair business in both enamelledware and closet fixtures. The rise in raw and manufactured cotton products has now subsided, and prices on cotton wastes have no upward incentive. The scrap material markets remain quiet; while the fluctuating movement is still noted in ingot metals.

MONTREAL MARKETS

MONTREAL, November 14.—Many important items among plumbing, steamfitting and tinsmithing supplies now register revisions in prices to lower levels. Soil pipe and fittings show a substantial reduction through an increase in discounts. Bar iron and steel also draw attention through the announcement of lower prices on practically all qualities. Dart unions feature the report on pipe fittings, these being reduced; while in the sheet markets both dull Canada plates and Queen's Head galvanized sheets are lower. The former shows a reduction of 20 cents on each of the quantity boxes, and the latter, through a change in the differential, is reduced 25 cents per 100 lbs. New lower prices are given on both the Simplex and Handy Andy force cups.

There is not the same strength in the undertone of several basic steel commodities, although many lines are remaining steady for the present. The improvement in the industry as a whole is not as pronounced as a few weeks ago, and where changes in prices to higher levels were thought likely, these same lines are now reported on an easier tone, if anything. Scrap metals are stated to be on a much better basis, but business continues very quiet. Ingots are holding with few marked changes, prices on all metals remaining at former levels.

LOWER PRICES ON FORCE CUPS

Montreal.

A reduction is announced in prices of both the Simplex and the Handy Andy force cups, following being the new quotations;

FORCE CUPS—	Simplex.	Handy Andy
No. 1, dozen	5 20	4 20
No. 2, dozen	6 35	5 20

LEAD PRODUCTS HOLD STEADY TO FIRM

Montreal.

The various lines of lead products remain unaltered, with the tendency also little changed. These products are apparently waiting for more marked developments in the metals on the primary markets, which continue to show slight fluctuations but resulting in little ultimate change. The recent stronger showing firmed the finished products, but not to the extent of increasing pri-

ces. This improvement is not as evident at present, leaving the chances of an early revision at least, more remote on solders and other lines. The market is, however, by no means weak but is on the other hand quite steady. Present prices are as follows.

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 10¼
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

DART UNIONS ARE REDUCED IN PRICE

Montreal.

Through a change in discounts, Dart unions are lowered in price. Black are now quoted at less 33 per cent., galvanized at less 13 per cent. off list prices. Former discounts were 29 and 8 per cent. respectively. Other lines of fittings are holding unchanged with sales continuing of a small and sorting character. Following are present discounts;

PIPE FITTINGS—	Per Cent.	
Cast iron fittings	25	
Bushings, cast	27½	
Bushings, malleable	25	
Flanges	37½	
Plugs	27½	
Flange unions	22½	
Malleable unions	42½	
Dart unions, black	33	
Do., galvanized	23	
Nipples, ½ to 4" close and short	50	
Do., long	60	
Do., 4½ to 8" close and short	40	
Do., long	50	
Couplings, 4" and under	30	
Do., 4½" and larger	10	
Pound Goods —	Blk.	Galv.
Class A	0 53	0 65
Class B	0 21½	0 28½
Class C	0 14	0 21½

NOT THE SAME FIRMNESS IN COTTON WASTE PRICES

Montreal.

No further change in quotations is recorded in cottonwastes or wipers since the decline in Dominion wipers two weeks ago. Cotton wastes are fairly steady although the strength of cotton on the primary market would seem to have spent itself, leaving the undertone of wastes not of the firm standing that has prevailed in past weeks. Unchanged prices on the various qualities are as follows:

COTTON WASTE — Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLCR, 15c; Colored, Fancy, 14c; Lion, 12½c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 20c; colored cotton, 14c. Above lines subject to trade discount for quantity.

BOILER TUBES COME UNDER A REVISION

Montreal.

A revision is made in all sizes of Lapweld boiler tubes, also in 2½ inch and larger Seamless tubes. Revised prices are in all cases in the nature of a reduction which varies according to size. This price change is said to be in accordance with the general easier movement in the steel industry but governed by local stocks where dealers are apparently anxious to keep well in line with the trend of the market. The buying movement in tubes is rather spasmodic, although on the whole remains seasonably dull. Following are revised prices on the various sizes;

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

VALVES AND BIBBS HOLD UNCHANGED

Montreal.

Discounts on the various lines of valves and bibbs are holding unchanged, with sales of a small and sorting character. With the advance of the winter months, little improvement in general is looked for as these lines of plumbers' supplies usually show a slackening at this season. Following are discounts on the various lines;

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard ..	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	10%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard ..	20%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%

LOWER PRICES ON PRACTICALLY ALL BAR IRONS

Montreal.

The trend of steel products, insofar as bar iron and steel is concerned, took rather a sudden turn when quotations were lowered on practically all grades. While it was generally shown that bars, shapes, etc., did not improve in past weeks to the extent that was evident on the sheet market, it was thought by many that the market would continue quite steady for the meantime at least.

It is noticeable that conditions now at the mills have not the improved standing that prevailed last month, when the brightest outlook was furnished, and it appeared that the chances of easier prices to any extent were more remote. However, the return of previous conditions seem to have settled, and in order to obtain orders lower quotations are extended. The extent of the decline varies on the different grades from 10 cents to 50 cents per hundred pounds, and following are local current prices;

IRON & STEEL—	
Common bar iron, 100 lbs.	2 90
Refined iron	4 40

Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	4 75
Band steel	2 90
Spring steel	4 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining teeth steel per lb.	0 22
Black Diamond tool and cast steel	0 22

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

RANGE BOILER SITUATION GRADUALLY IMPROVES

Montreal

The standard list on range boilers is now more generally maintained, and the 30 gallon boiler is on a more settled quotation at \$9.25. Dealers who were offering the lower price in the hope of reducing their holdings before the winter set in, have in most circumstances brought their surplus to a satisfactory lower amount, and it is felt a more settled market will again prevail. Manufacturers are upholding the standard prices and believe distributors should again ask the higher price which offers a reasonable profit for their handling. Following are standard quotations;

RANGE BOILERS—	Std.	Ex.	Heavy
30 gallon	9 25	11 75	
35 gallon	12 00	14 50	
40 gallon	14 50	17 00	
52 gallon	21 00	26 00	
66 gallon	30 00	36 60	
82 gallon	37 50	50 00	
100 gallon	48 00	58 00	

NEW LOWER LIST ON CORRUGATED SHEETS

Montreal.

Accompany other products of the galvanized iron, new lower prices are announced on corrugated sheets. The trade discount remains unchanged, but list prices have been reduced on all gauges. The amount of reduction varies on the different gauges, but is from 7 to 12 per cent. Sales of corrugated sheets have eased off considerably with the appearance of winter weather, this lack of demand no doubt assisting towards the present lower quotations. The chief factor however, is said to be the easier trend of the plain galvanized sheets distributors of corrugated being anxious to keep in line with the plain sheet market. Following are the reduced prices:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 7½%.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

SCRAP ON AN IMPROVED BASIS

Montreal.

There appears to be no marked improvement in sight this season in the movement of waste materials. Slight signs of a more active market were evident in recent weeks, but an increase in actual sales has as yet failed to materialize. The season is gradually drawing to the closed winter weather which usually produces added dullness for dealers, and little hope is now expressed for improved conditions this year. The tone of the market has returned to a firmer standing, while dealers locally

have not advanced quotations a healthier basis is now evidenced. Following are nominal prices:

SCRAP—

Automobile tires	0 75
Rubber shoes	0 02½
Yellow brass	0 05
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02½
Light copper	0 07½
Heavy copper	0 10½
Wrought iron, R.Rd., No. 1 per gr. ton.	10 50
Malleable scrap (ton)	10 50
Pipe scrap (ton)	7 00
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	20 00

DULL CANADA PLATES ARE REDUCED IN PRICE

Montreal.

With the season for Canada plates drawing to a close, quotations on dull sheets are lowered 20 cents on boxes of each quantity.

Through a change in the differential between Queen's Head and Fleur-de-Lis brands of English galvanized sheets, the former are now quoted 25 cents per 100 lbs. lower on all gauges.

New mill prices are announced on bright tin plates but do not warrant the announcement of lower prices to the trade. The market on all sheets does not show the marked degree of strength as was manifest during recent weeks, although the decided easier tendency is more pronounced in other lines of the steel industry. Considering the small amount of profit now obtainable, it is felt that easier prices to any extent are at present unlikely even if the recent improvement is not held at the primary sources. Local quotations are as follows;

BLACK SHEETS—

10 gauge	4 30	4 65
12 gauge	4 40	4 75
14 gauge	4 50	4 85
16 gauge	4 60	4 95
18-20 gauge	4 80	5 20
26 gauge	4 95	5 40
22-24 gauge	4 90	5 35
28 gauge	5 00	5 50

GALVANIZED SHEETS—

10½ ounce	6 85	7 75
28 gauge	6 45	7 35
26 gauge	6 15	7 00
22-24 gauge	5 95	6 75
20 gauge	5 80	6 60
18 gauge	5 80	6 50
16 gauge	5 70	6 50
14 gauge	5 65	6 50
12 gauge	5 40	6 50
10 gauge	5 30	6 50

English Standard—	Queen's Head—	Fleur-de-lis
28 gauge	8 25	7 75
26 gauge	8 00	7 60
24 gauge	7 40	7 10
22 gauge	7 05	6 65
18-20 gauge	6 35	5 20

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.	
18 x 24 x 52s	8 25
18 x 24 x 60s	8 50

BRIGHT TIN PLATES

20 x 28 x 100 lb. bases	17 50
20 x 28 IC, 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00

LOWER PRICES ON SOIL PIPE AND FITTINGS

Montreal.

Through an increase in discounts, quotations on both soil pipe and fittings have been reduced in price. The 2 and 3 inch pipe shows an approximate reduction of 15 per cent., 4 inch nearly 17 per cent. Larger sizes, 5 and 6 inch, do not record quite so extensive a decline, while all sizes of fittings are now quoted 10 per cent. lower. There is a fair amount of activity in soil pipe at present, the demand no doubt assisted by the approach of colder weather, when the frozen ground will not permit the laying on such an extensive scale. Following are revised discounts;

SOIL PIPE—

2 and 3 inch	45%
4 inch	50%
5 and 6 inch	45%

Fittings

2 to 6 inch	50-10%
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FAIR BUSINESS IN RADIATION CONTINUES

Montreal.

Construction activity continues to demand a fair amount of radiation and boilers. Although the season is advancing, there is still some of the larger work requiring supplies, which will keep manufacturers fairly busy until the end of the year. No change in prices of either is evident, and following are current quotations;

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in. to 36-in., 10 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

CURRENT PIPE MOVEMENT CONSIDERED FAIR

Montreal.

Considering the season of the year, the prevailing demand for wrought piping is fair. The movement is of small and sorting character, but orders continue to come to hand in good numbers. The smaller sizes still contribute the greater volume of business, outside dealers buying these where the larger piping is not in such general demand.

EAVESTROUGH, CONDUCTOR PIPE AND ELBOWS REDUCED IN PRICE

Montreal.

Through a change in discounts, net prices on eavestrough, conductor pipe and conductor pipe elbows have been lowered in price. The discount on pipe and trough is now 70 per cent, formerly being 60—10 per cent. Elbows will now sell for 60 off former discount being 55 per cent. Price declines are announced

on these lines to keep pace with the trend of the plain galvanized sheets which have been on an eager market since the last revision made in the above products.

The recent first touch of winter weather has had its effect on the current movement of eavestrough, etc. Sales are now reported as showing a decided falling off in the past two weeks. Business has, however, been fairly well maintained all during the late summer and fall months in comparison with other years. Following are list prices and revised discounts.

EAVESTROUGH—

O. G. Square Bead—Per 100 ft.				
8 inch	10 inch	12 inch	15 inch	18 inch
\$15 90	\$17 70	\$21 20	\$28 80	\$36 80

O. G. Round, and Half Round—Per 100 ft.				
8 inch	10 inch	12 inch	15 inch	18 inch
\$16 90	\$18 70	\$22 20	\$29 80	\$37 80

Discount 70 per cent. off list.

CONDUCTOR PIPE—Per 100 ft.

2 inch	3 inch	4 inch	5 inch	6 inch
\$18 40	\$22 30	\$29 60	\$40 00	\$49 00

Discount 70 per cent. off list.

CONDUCTOR ELBOWS—

Plain round or round corrugated.	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

FAIR MOVEMENT IN ENAMELLED WARE

Montreal

Current sales of the different lines of enamelled ware continue in fair volume, stimulated to a certain degree by the advanced stage of building construction now nearing completion before the colder weather sets in. Locally, few changes are noticeable in market conditions, although the quotation of 20 and 10 per cent. off list prices are more generally maintained. Following are the list prices and discounts.

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	
16 x 24	\$7 50
18 x 30	\$8 70
20 x 30	\$9 90
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	\$51 40
Bath tubs, 5½ feet	\$57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim, F241 or P4345	12 60
Less 20 and 10 per cent.	

CLOSET PRICES REMAIN UNCHANGED

Montreal

The fair amount of activity recorded in other enamelled ware is also noted in closet outfits. Prices remain at the revision of last month, when a slight general advance was announced. Following are present local quotations.

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	9 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra

Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

"S" WRENCHES ARE LOWER IN PRICE

Montreal.

New lower quotations are now given on the various sizes of pipe and nut "S" wrenches. Following are net prices on sizes of both kinds;

"S" WRENCHES—	Nut.	Pipe.
6 inch, per dozen	10 00	10 00
8 inch, per dozen	12 60	13 20
10 inch, per dozen	14 80	16 00
12 inch, per dozen	22 80	24 00
14 inch, per dozen	30 50	31 80

SIDING AND SHINGLES SHOW REDUCTION IN PRICE

Montreal.

The general reduction in products of galvanized sheet manufacture has also reached siding and shingles. Painted siding is reduced 25 cents per 100 square feet, galvanized 50 cents square. Shingles shows a decline of 50 cents per square.

FEW CHANGES IN INGOT METALS

Montreal.

The ingot metal markets are more or less featureless, with very few changes in prices and the volume of business perhaps a little less than recently. Indications point to no marked change taking place in the near future.

TIN—There has been a slight improvement in London, and the market here is also higher owing to the advance in Sterling exchange. Opinions seem to differ as to the future of this metal, but it is probable it will work higher after the turn of the year. Local price 35 cents.

COPPER—The New York market seems to be slightly firmer, especially for forward deliveries. However, unless conditions in Germany improve and thus enable the resumption of export business, it is difficult to see how prices can advance to any great extent. London is now expected to present a better appearance after the recent decline. Electro is quoted at 17½ cents. Casting at 17¼ cents.

LEAD—The London market maintains its firm tone, but it is not expected that prices will go any higher in view of more plentiful supplies. There is nothing new as far as the American market is concerned, where the situation between supply and demand seems to be pretty well balanced. Quotation locally, 6¾ cents.

SPELTER—London eased off somewhat this week, but this is only regarded as temporary. It is significant that Germany is not offering any spelter despite the decline in the mark. East St. Louis is steady at about \$4.75, and producers are not anxious to sell at this figure. Local market is quoted at 7¼ cents.

ANTIMONY—New York is quiet and unchanged with no immediate sign of improvement. The local situation is also unchanged with a quotation of 7 cents for Chinese, 8 cents for high grade English.

TORONTO MARKETS

TORONTO, November 14.—Price changes of varying extent and importance have again developed on the current plumbing and steamfitting markets. Among the pre-eminent revisions are the declines on bar iron and steel, which reflects the recent easier tones prevalent in the steel industry generally. Eavestrough, conductor pipe, and elbows, also have lower quotations. Other reductions cover galvanized vent pipes; the Penberthy line of brass valves; Dart unions; galvanized siding and shingles, and corrugated sheets. The new lower prices on corrugated is another indication of the steel market trend; while through a revision in the differential between Queen's Head and Fleur-de-Lis galvanized sheets, a reduction of 25 cents per 100 lbs. appears on the Queen's Head brand.

An easier tendency is also noted on soil pipe and fittings, but no price developments have been recorded on the local markets. Tin plate quotations have also eased on the primary market centers; and with the rise in raw and cotton products now spent, prices on cotton waste have no upward incentive. On the other hand, the range boiler quotations are now being well maintained, any trend towards price-shading having been neutralized. The scrap markets are generally quiet; while the pendulum movement is still prominent in metal circles.

GALVANIZED VENT PIPE SHOWS PRICE DECLINE

Toronto.

A substantial drop in price has been recorded on galvanized local vent pipe. The revised quotations are as follows:—3 inch, \$6.69 per 100 feet; 4 inch, \$8.88; 5 in., \$12.00; and 6 inch, \$14.70 per 100 feet. Other items in this list remain unchanged.

BRASS VALVE DISCOUNTS SHOW REVISION

Toronto.

Revised quotations announced on the Penberthy line of brass valves, now register the following discounts:—Gate Valves, 25%; Regrinding Valves 20%; Swing Check Valves 10%; Compodisk Valves 20%.

FURTHER PRICE DECLINE ON CORRUGATED SHEETS

Toronto.

A further downward revision of prices on corrugated sheets has now been announced. This decline is chiefly attributed to the recent easier tone in the sheet markets generally, particularly on galvanized sheets and plates on the primary centres. While the recent strength in sheet inquiry was being maintained, the firmer tendency was reflected on corrugated, but with the recession in demand, this downward price movement then materialized.

With the advent of early winter, the weather conditions do not contribute to outdoor building activities, and consequently the current sales of corrugated sheets have suffered a recession. However, dealers express the opinion that the demand has been maintained in a fairly satisfactory fashion all through the summer and fall months, and a decline in the movement at this time of the year is generally expected. The new quotations are as follows:—

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	\$6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00

No. 20 gauge	12 50
No. 18 gauge	16 50
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

DART UNION DISCOUNTS ARE NOW REVISED

Toronto.

Through a revision in the discounts, quotations on the various sizes of Dart unions are now lowered. The extent of the decline is approximately 10 per cent. Prices on other lines of pipe fittings generally remain unchanged this week, with an average volume of sales being recorded. Only moderate business is anticipated, according to distributors of these products, during the current season of the year. The list on pipe fittings, including the revised discounts on Dart unions, is as follows:

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 8 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	33½
Do., ¾ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in.	50
close and short	40
Do., 4½ in. and larger	60
Do., long, ½ in. to 4 in.	50
Do., 4½ in. and larger	30
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

	Black	Galvanized
Class A	0 55	0 68
Class B	0 23	0 33
Class C	0 15	0 23

PRICE DECLINES IN IRON AND STEEL MARKETS

Toronto.

Declines of varying extent on the different products now appear in the iron and steel markets. This condition has resulted from the recent easier tone of the industry generally, when the degree of improvement somewhat slackened, and the tendency toward firm prices was not maintained. The current re-

ductions, therefore, indicate the lower mill prices combined with a return of similar elements in these markets which developed during the dull summer period. Following are the easier price levels:—

IRON AND STEEL		
Mild steel bars, base	3 00	3 25
Mild steel bands, 3-16 in. base..	3 50	3 75
Bar iron, base	3 00	3 25
Angle iron, base	3 10	3 35
Horseshoe iron	3 75	4 10
Tire steel	3 50	3 75
Spring steel	5 00	5 50
Crucible cast sheet steel	30 00	35 00
Mining drill steel		18 50
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	3 00	3 25
Norway iron	12 50	15 00
Toe caulk iron	4 00	4 50
Hoop steel	3 50	3 75

LEAD MARKET TREND GRADUALLY BETTER

Toronto.

The current demand for lead and zinc goods is holding up fairly well, and prices are being maintained at previous levels. The recent price fluctuations on primary metals, which enter chiefly into the production of these goods, and especially solders, have not been of sufficient duration or extent to show reflection in the domestic quotations on the manufactured commodities. Primary lead and tin markets, however, are generally registering a gradual trend towards improvement. Prevailing quotations remain at the following unchanged levels:—

LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb 0 09½	
Cut sheets, ½ to ¾ lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 29
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

STILL BRISK ACTIVITY IN ENAMELLED WARE

Toronto

There has been no change to record in the situation on enamelled ware, both prices and discounts remaining unchanged. The prevailing degree of activity is described as fairly active, however, with this movement being accentuated by the fact that many buildings commenced late in the summer and fall seasons, are now being rushed to completion. The current unchanged list therefore, is as follows:

ENAMELLED WARE—			
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net \$16 25			
Do., do., 5½ ft., net.			17 50
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847 ..			23 60
18x21" Apron F169 or P4205			17 60
18 x 21" Roll Rim, F197, F199 or P4655-6			15 40
17 x 19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	\$7 60	\$7 70	\$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90
All above list except lines marked net.			

MANY FALL BUILDINGS NOW IN-STALL RADIATORS

Toronto.

The current demand for radiators and boilers is showing a seasonal decline in activity from the brisk movement reported earlier in the Fall, but is still described as satisfactory for this season of the year. A fair proportion of the larger buildings which have been in the course of construction, are now in the stage where radiator installation is being rushed prior to the advent of winter. Prices are holding unchanged on these products, with no marked development in the primary contributory elements. Quotations follow:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent. for water and 54 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent. for water and 49 per cent. for steam.

Discounts on 1-column hospital size, water 30 per cent.; steam 31 per cent.

Wall radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water:

Round, 60 per cent. off list. Square 10 per cent. off list.

Steam:

Round, 15 per cent. off list; square, 5 per cent. off list.

TIN PLATES EASIER IN PRIMARY CENTRES

Toronto.

Recent reports from southern primary steel markets indicate that some of the largest producers are putting into effect lower quotations on timplates. The extent of the decline is approximately \$1.00 per ton, and the new prices are stated as good until the end of March, 1922.

The tinplate markets have been far from strong during the past few weeks, and some lowerings have recently developed in local prices on coke tin and Canada plates. These are now generally holding at the following levels:

PLATES, CANADA—		Per box
Dull, 60 sheets	.....	5 65
Ordinary, 52 sheets	.....	5 60
PLATES, COKE TIN—		
1C, 20 x 28, 112 sheets	.....	12 00
IX, 20 x 28, 11 sheets	.....	19 00
IX, 20 x 28, 56 sheets	.....	12 00
PLATES, CHARCOAL TIN —		
IX, 20 x 28, 112 sheets	.....	14 00
1XX, 20 x 28, 56 sheets	.....	16 00
PLATES, TERNE—		
1C, 14 x 20, 112 sheets	.....	12 00

REVISED DISCOUNTS GIVEN ON TROUGH AND PIPING

Toronto.

Another decline of approximately 17 per cent. has been announced on conductor pipe and eavestrough; both ridge roll and valley. This change is in keeping with the easier tendency which has been noted in these markets during the last week or two, with the advent of the early winter season and the slackening in outdoor building and repair activities of this nature. The falling off in the primary steel markets generally, has also been reflected in many semi-finished and finished products.

The new discounts on eavestrough and piping are 70 per cent. off list; while elbows are quoted at list less 60 per cent, which represents a reduction of 10 per cent. Following are the revisions:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 70 per cent.	

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00
Less 70 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

EASIER TENDENCY IN SOIL PIPE AND FITTINGS

Toronto.

While there has recently developed some anticipation of revisions in the discounts on soil pipe and fittings, no change had been announced and none could be determined upon at the time of going to press. One of the most prominent and well-informed dealers in these products, described the tendency to change at the present time as being uncalled for, when discussing this situation with Sanitary Engineer. It was pointed out that with but a few weeks before the end of the year, both distributors and merchants will be busily engaged upon annual inventory work, with very little time or incentive for placing orders or receiving fresh stocks.

Whether the local quotations on soil pipe and fittings will follow the lead of certain eastern markets and register reductions in the near future, could not be ascertained. Predictions in this direction were difficult to secure, and the consensus of opinion indicated an attitude of watchful waiting. It is noticeable that an easier tone has now developed on the primary steel markets generally, and this factor has been reflected in lower quotations on corrugated sheets, and reduced prices on bar iron and steel. Other tubular goods, however, are remaining unchanged with regard to price levels, and the primary factors do not contain any changes of marked interest. Prevailing quotations on soil pipe and fittings are as follows:

SOIL PIPE—

2 inch	25 per cent.
3 inch	30 per cent.
4 inch	30 per cent.
5 and 6 inch	30 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	40-10 per cent
8 inch	Net

RANGE BOILER QUOTATIONS NOW WELL MAINTAINED

Toronto.

While a slight tendency was recently noticeable in the direction of price shading on the revised list quotations on

range boilers, principally due to efforts to lower supplies of the 30-gallon size—this situation has now improved and prices are generally being maintained. Distributors state that these products are now entering the season when the volume of sales is naturally more confined, and current conditions are such that dealers with stocks heavier than usual are naturally anxious to dispose of their holdings prior to the arrival of the winter onths. The prevailing list remains as follows:

RANGE BOILERS—

	Standard	Ex. Heavy
30 gallon	\$ 9 25	\$11 75
35 gallon	12 00	14 50
40 gallon	14 50	17 00
52 gallon	21 00	26 00
66 gallon	30 00	36 00
82 gallon	37 50	50 00
100 gallon	48 00	58 00
120 gallon	57 00	67 00
144 gallon	.....	76 00

REDUCED PRICES APPEAR ON SIDING AND SHINGLES

Toronto.

A decline of between 6 and 7 per cent. also appears on galvanized siding and shingles. This change is in accordance with the recent revision to easier levels in prices on other lines of galvanized sheet manufacture. The new quotations on siding are \$7.50 per square; and on shingles, \$8.50 per square. There is a discount of 7½ per cent. applicable in both cases. These levels are 50 cents lower than the previous prices.

SCRAP MATERIAL MARKETS GENERALLY QUIET

Toronto.

The scrap material markets are generally in a quiet state, with the undertone holding to the recent slight improvement. The attitude of dealers is presented in the fact that accumulations of iron and steel scrap are strongly held, and future activity is still being anticipated in many quarters. Copper and brass scrap have been a little more prominent than the other metals, but business in these markets generally has been of a subdued nature, with no marked developments having been recorded. Following are dealers average prices for fairly large quantities:

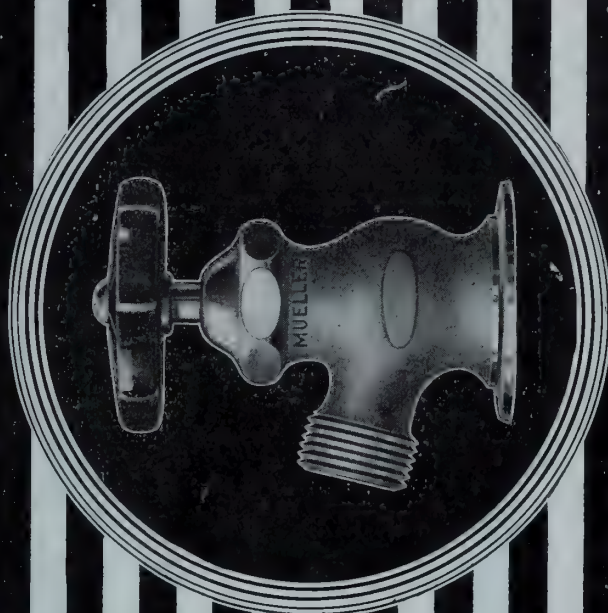
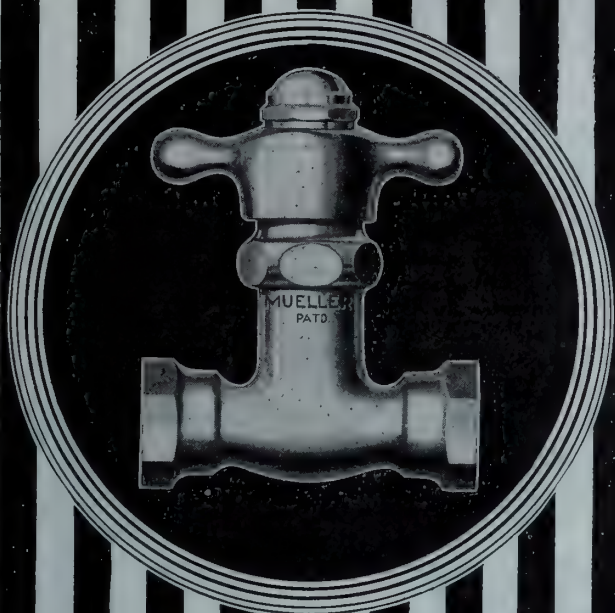
SCRAP MATERIALS—

Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	9 50	10 00
Borings and turnings	2 50	3 50
Revolving rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	5 50	6 00
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons—		
No. 1 cast	15 00	16 00
Stove plate	11 00	12 00
Grate bars	10 00	11 00
Standard car wheels	13 50	14 00

Scrap Metals.		
Heavy copper and wire	9 25	10 00
Light copper	7 50	8 00
No. 1 composition	8 00	8 50
No. 1 comp. turnings	6 00	6 50
Light brass	3 00	3 50
Heavy yellow brass	5 00	6 00
Heavy lead	3 75	4 00
Tea lead	2 00	2 50
Scrap zinc	8 50	4 00

Scrap Rubber.		
Boots and shoes	2 00	2 50
Lumbermen's rubber boots	1 25	1 75
Auto tires	0 50	1 00
Solid tires	0 75	1 25

(Continued on page 32)



MUELLER Stop Cocks, Sill Cocks and Basin Cocks

The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install **MUELLER** goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

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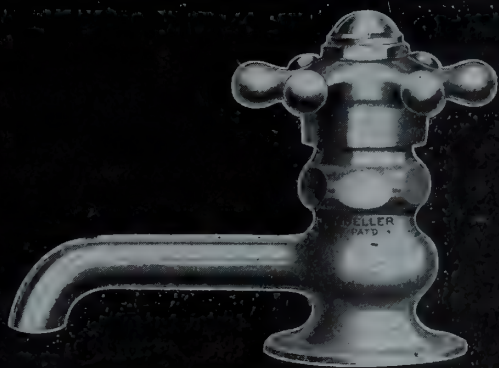
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TORONTO MARKETS (Continued from page 30)

FAIR BUSINESS FOR CLOSETS AND FIXTURES

Toronto.

Quotations on closet combinations and fixtures are still holding unchanged at the revisions recorded some few weeks ago. The demand for these products is described as fairly active, with some dealers having reported good business in both closets and enamelled ware. The season is nearing an end, however, and it is said that this is a contributing factor to the present degree of activity. Following is the general price list:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	28 00
Do., with post hinge seat	28 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 00
Do., vitreous china, with oak post hinge seat and cover	31 55
Do., vitreous china, with mahogany post hinge seat and cover	31 75
Do., white, Vitro or Pussyfoot, with oak post hinge seat and cover	31 55
Do., white vitre or pussyfoot, with mahogany post hinge seat and cover	31 75
Do., enamelled iron tank with oak post hinge seat and cover	31 55
Do., enamelled iron tank with mahogany post hinge seat and cover	31 75
Additions or reductions to above	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ¾ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	20 25
CLOSET SEATS—	
Oak wood strip seat and cover	3 70
Oak post hinge seat and cover	4 75
Mahogany finish post hinge seat and cover	5 00

EXPECT SEASONAL WINTER TRADE IN BOILER TUBES

Toronto

The boiler tube situation has failed to take on any strong semblance of recovery, insofar as the expected seasonal proportion of demand is concerned. The current sales have not increased to any great extent, according to recent reports, and the prevailing situation is generally summed up in expectations for future improvement. The winter months contain the hopes of domestic dealers in this respect, and this condition reflects the upward trend and brisker activity in other steel products generally; a factor which may develop in the boiler tube markets if stock liquidation and replacement values contribute in this direction. The average unchanged local quotations follow:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	
1¼ inch	27 25	
1½ inch	26 25	
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

ONLY MODERATE SALES FOR COMPRESSION GOODS

Toronto.

The general situation in compression goods has failed to develop any marked features. The current demand is of a moderate nature, with the proportion of sales having registered a seasonable decline since the advent of early winter weather. Interior building activities, and repairs of this nature, still combine to constitute periodical requirements of these products.

Quotations on the various makes, styles and sizes of valves and cocks, are holding at the latest revised levels, and no current changes have been reported. Following are the prevailing discounts:

VALVES—	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoaks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	10
Globe, angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves	20
J. M. T. valves	20
J. M. T. C.	25
J. M. T. gate valves	25
Gate or straightway	16-10
Jenkins globe	10-10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves	20
Emco, check valves	20
Webber gate valves	25
Emco, Globe valves, ¼" to 2"	30
Emco, Globe valves 2½" to 3"	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
¼ inch opening No. 3633	43

CURRENT PIPE MOVEMENT DESCRIBED AS FAIR

Toronto.

The demand for tubular goods has shown no material change, the movement continuing somewhat irregular in demand, and spasmodic in quantity. Dealers describe current sales as fair for this season of the year, and piping prices are unchanged, with list No. 53 remaining in effect.

In jobbing circles there are reported to be some signs of more activity; while producers are stated to be operating up to very fair proportions of capacity. On the whole, of course, there has recently been a slight recession in demand, this being a seasonal change in that direction.

REVISED DIFFERENTIAL ON GALVANIZED SHEETS

Toronto.

Through a change in the differential between Queen's Head and the Fleur-de-Lis brands of galvanized sheets, the Queen's Head are now quoted 25 cents per 100 lbs. lower on all gauges.

The brisk demand for sheets on the primary steel markets has recently subsided to some extent, and these easier tones are reflected on the domestic markets generally. An attempt by certain southern sheet producers to place still another advance on prices, failed to hold in view of the slackening in demand. The local situation remains fair, with prices holding unchanged at present.

BLUE ANNEALED—

10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—

18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 10
26 gauge	4 65	5 15
28 gauge	4 75	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—

	Queen's Head	Fleur-de-lis
28 gauge	9 25	8 75
26 gauge	9 00	8 50
24 gauge	8 40	8 10
22 gauge	8 05	7 55
18 and 20 gauge	7 35	7 60
Premier and Apollo—		
10½ oz.	6 50	7 00
U. S. 28, base	6 10	6 60
U. S. 26	5 80	6 30
22 and 24	5 65	6 15
18 and 20	5 50	6 00
16	5 35	5 85
12 and 14	5 20	5 70

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

COTTON MOVEMENT SPENT WASTE PRICES UNCHANGED

Toronto.

The recent upward trend in the raw cotton markets has obviously receded to some extent, and the brisk activity in these circles has now spent itself. As a consequence, the stronger feeling in cotton waste markets is no longer evident, and there is no indication, at present, of any development towards recovery. One dealer expressed the opinion that the demand for cotton, and the reflected higher quotations on cotton goods generally, merely had an effect of making future declines in cotton waste prices more uncertain than might otherwise have been the case. Prevailing levels are therefore unchanged as follows:

COTTON WASTES—	
Cream, polishing	0 19½ 0 20
White, cotton.	
XXX	0 18½
XX	0 16½
X	0 15½
XC	0 14½
XXX extra	0 17
XX grad.	0 16
XLOR	0 15
X empire	0 14
X press.	0 13
Colored, cotton.	
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 10
Keen	0 09
No. 1.	0 13½
No. 7.	0 12½
No. 1A.	0 11½
No. 1B.	0 10½

Above lines subject to trade discount for large quantities.

PRICES OF COPPER GOODS STILL MARKING TIME

Toronto.

With the quotations governing copper on the primary markets now holding at a steady level, the current prices on copper and brass goods likewise continue to mark time. The easier quotations recently recorded on copper and brass rods, sheets and tubing, remain unchanged, with prevailing trade in these markets reported to be registering signs of slight improvement in general business conditions.

(Continued on page 34)

**MADE
IN CANADA**

MALLEABLE AND CAST IRON PIPE FITTINGS

**Annual Capacity
6000 Tons**

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark
mean fittings made with
iron of high tensile strength
— proper proportions and
correct tapings.

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of our brand mean fittings
made of *Air Furnace Re-
fined Iron*, reamed and tap-
ped to gauge with perfect
threads.

A trial of our pipe fittings will prove the quality of service they give.

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TORONTO MARKETS

(Continued from page 32)

PENDULUM MOVEMENT IN
INGOT COPPER

Toronto.

The pendulum in the ingot metal markets is alternately swinging towards improvement with increased demand and higher prices, and then in the direction of price fluctuation with easier tones generally. This procedure has been especially marked in the copper markets, and prices on this metal are again firming up, due to a slight recovery in demand. This upward movement shows a return, at least of some extent, of the betterment in copper evidenced a few weeks ago; from which higher levels, quotations have since receded. Producers are still claiming that the prevailing markets are not attractive, and state that their hope lies in the direction of higher prices being maintained on futures, coupled with increased consumption.

The primary tin markets still retain varying fluctuations, but the general trend seems to be in an upward direction. The recent gains in the exchange rates, have served to enhance tin values. Aluminum quotations are showing signs of easing in the primary stage; but changes in the ingot markets generally have not been sufficiently marked to reflect on the current local quotations, which remain practically unchanged.

COPPER—After the rise in the copper markets, tabulated a few weeks ago, the strengthened inquiry and the price gains were not retained, and a re-action set in. Quotations receded from the higher levels attained on the primary markets, and the proportion of inquiry for copper fell away in a marked degree. Recent reports from primary sources, now indicate that the copper markets are again on the mend, having resumed the upward tendency. How far these repeated fluctuations are likely to develop, at present seems difficult to discern. It is noticeable that the frequent changes both upward and downward on outside markets have not been considered of sufficient importance by prominent local dealers in metals to reflect any corresponding revision in domestic prices. The average current quotation on copper, therefore remains locally at 17 cents.

TIN—The recent market fluctuations in sterling exchange have had the results of keeping the trade guessing as to absolutely correct values in tin. This atmosphere of change on the primary markets, has not been reflected locally however, the quotations remaining unchanged at 35 cents. Some degree of importance is attached by southern producers to the report that more tin plate mills will be starting in the near future. It is expected that this development should lead to some increased buying of tin; but on the other hand accumulations are still said to be fairly heavy.

LEAD—Primary markets report a slight increase in the demand for lead,

and now that the railroad strike controversy has been satisfactorily settled in the States, the lead markets there have again resumed a firmer attitude. Prices are generally unchanged, and the local quotation of \$6.50 still prevails.

SPELTER—Several of the leading producers of spelter are still out of the market, but report a confident feeling that under these circumstances, the present depression will not be of long duration. Judging by the recent slight increase in current purchasing, consumers' stocks are getting down to the point where a resumption in heavier buying is looked forward to in the not

far distant future. Outside of this factor, the markets are generally quiet. Local prices still remain at \$7.00.

ANTIMONY—No sales of any consequence have been recorded in this market. There has been a slight easing in quotations on the southern primary markets, but it is said that the lower offerings have not been taken up. The local situation holds steady, with prices unchanged from 8 to 10 cents.

ALUMINUM—This market contains no new features. The prevailing price levels continue to hold unchanged, and this can also be said to local quotations, which remain at 28 cents.

WINNIPEG MARKETS

WINNIPEG, Nov. 12.—Actual price changes in the plumbing and steam-fitting supply markets are of a restricted nature, but indications as to the future trend of various commodities offer interest to close followers of these products. Developments as regards easier prices are looked for in certain quarters on Canada plates, but no indication as to this event has as yet transpired.

Some unsettlement has appeared in the range boiler markets, this anxiety being chiefly due to the desire to reduce stocks prior to the arrival of the winter season. The majority of the other primary markets are holding firm, with quotations unchanged on such products as wrought piping, lead and zinc goods, fittings, brass and copper tubing, rods and sheets. Some revision to a lower level is anticipated on corrugated sheets.

PIPE SALES IRREGULAR
AND ON SMALL BASIS

Winnipeg.

Wrought iron and steel pipe are maintained at list No. 53, which recently came into effect. A sorting movement are now said to be in fairly good shape. has been in progress, and the stocks There is a decided falling off in sales, being very irregular, and generally on a small scale. Prices as shown on list No. 53 are as follows:

PIPE, WROUGHT—Per 100 ft.		Bk.	Galv.
3/8 inch	...	6 25	\$ 8 50
1/2 inch	...	4 96	7 48
5/8 inch	...	5 10	7 63
3/4 inch	...	6 56	8 50
7/8 inch	...	7 90	10 10
1 inch	...	11 27	14 53
1 1/4 inch	...	15 25	19 67
1 1/2 inch	...	18 25	23 50
2 inch	...	24 55	31 65
2 1/2 inch	...	38 80	50 00
3 inch	...	50 80	65 45
3 1/2 inch	...	65 50	83 20
4 inch	...	77 60	98 50
4 1/2 inch	...	88 85	113 20
5 inch	...	103 60	132 00
6 inch	...	134 40	171 25

UNSETTLED FEELING APPEARS
ON RANGE BOILERS

Winnipeg

The range boiler situation appears to be temporarily unsettled, and local quotations are very indefinite. Owing to the quiet months approaching wholesalers are endeavoring to reduce their stocks and as soon as the supply runs low there will be a tendency for prices to be generally maintained. Following are the present nominal prices on the various sizes.

RANGE BOILERS—

20 gallons, each	...	\$10 00
30 gallons, each	...	10 00
35 gallons, each	...	13 25
40 gallons, each	...	16 25
52 gallons, each	...	23 45
66 gallons, each	...	33 15

82 gallons, each	...	40 60
100 gallons, each	...	62 50
120 gallons, each	...	75 00

SOIL PIPE QUOTATIONS
HOLDING UNCHANGED

Winnipeg

No change has been announced in the discounts on soil pipe or soil pipe fittings; and the demand seems to be falling off a little. As it is, conditions are below normal for this season of the year, and the development of a firmer tone is hoped for. The ruling prices follow:

SOIL PIPE—

2 and 3 inch	...	20 per cent. off
4 inch	...	30 per cent. off
5 and 6 inch	...	25 per cent. off
8 inch	...	10 per cent. adv.

FITTINGS —

2 and 3 inch	...	40 per cent. off
4, 5 and 6 inch	...	45 per cent. off
8 inch	...	10 per cent. adv.

EASIER TENDENCY NOTED
IN CANADA PLATES

Winnipeg

It is thought by some jobbers that Canada plate, will have a lower price soon; but there is nothing as yet to indicate the change. The current prices remain as follows:—

CANADA PLATES—Blued.

18 x 21 inch, per box	...	\$7 25
18 x 24 inch, per box	...	7 25
20 x 28 inch, per box	...	7 25

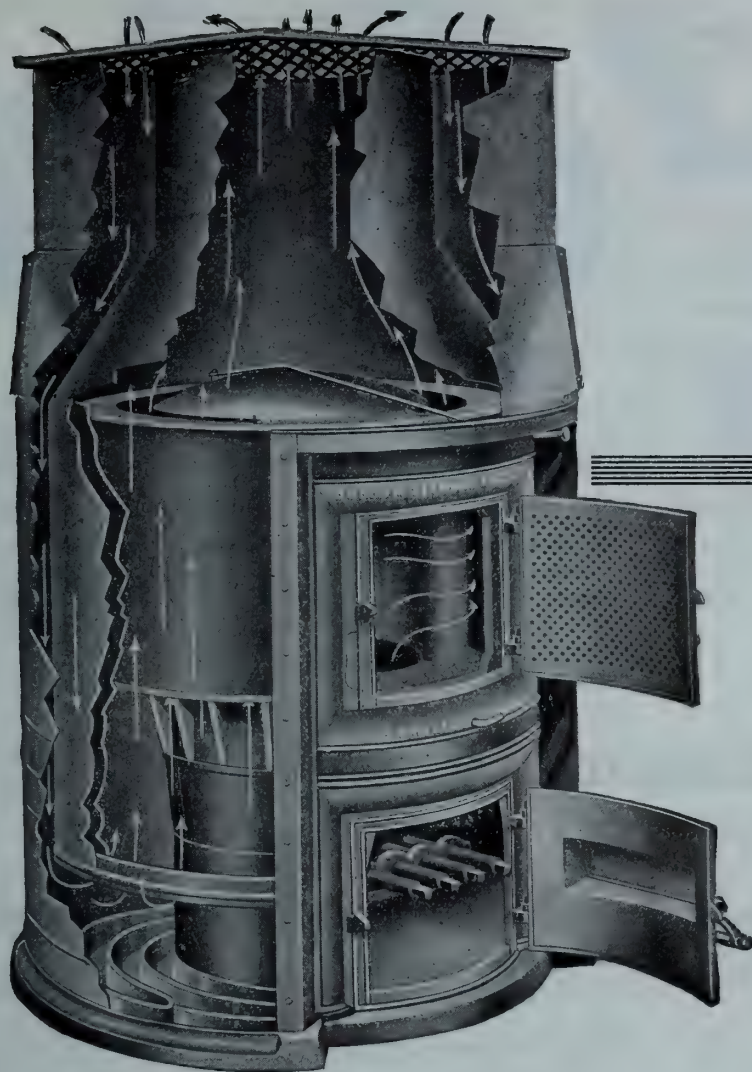
COTTON WASTE QUOTATIONS
HOLDING STEADY

Winnipeg

Prices on cotton waste remain unchanged. Following are the current market prices:—

WASTE—Cream polishing, 24 1/2c; White, XXX Extra, 21c; XX Grand, 20c; XLGR, 19c; X Empire, 17 1/2c; X Press, 16c. Colored, Fancy, 17 1/2c; Lion, 16c; Standard, 14 1/2c; Popular J, 13c; Keen, 11 1/2c.

Above lines subject to trade discount for quantity.



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JEWEL
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Furnace

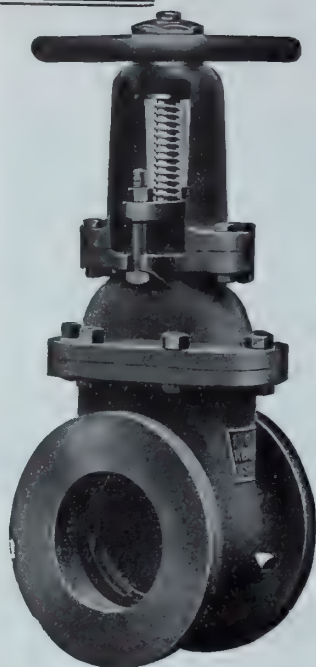
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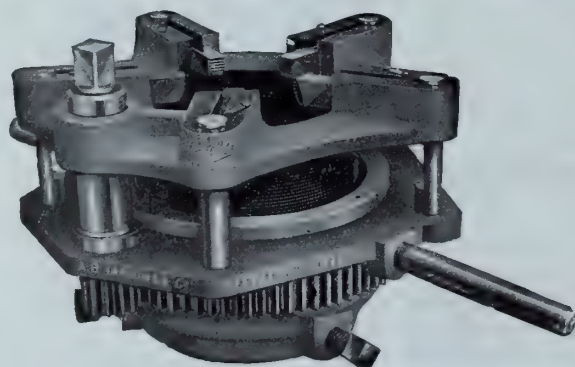
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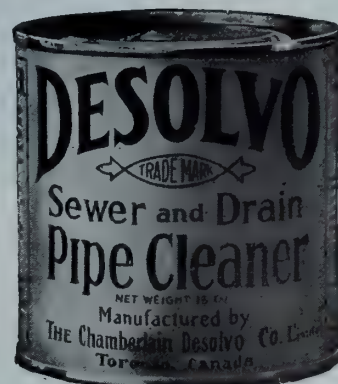
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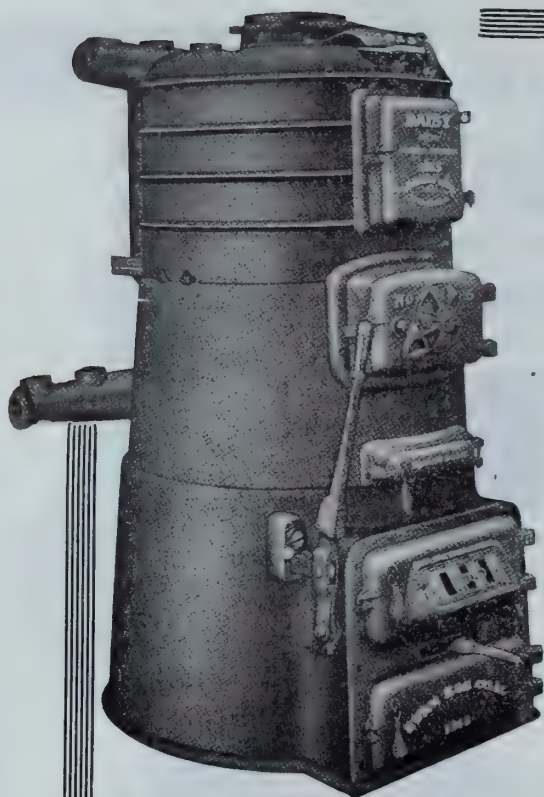
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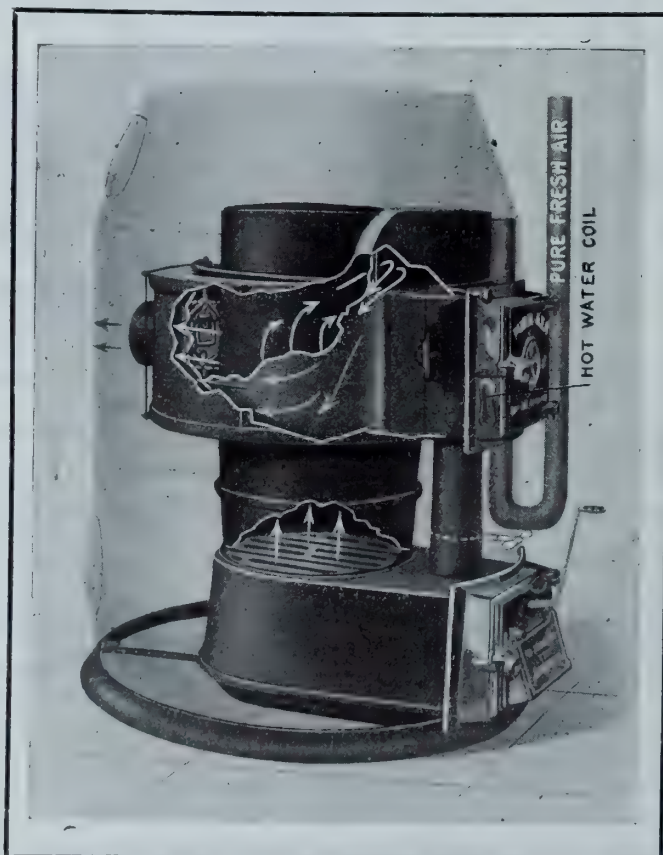
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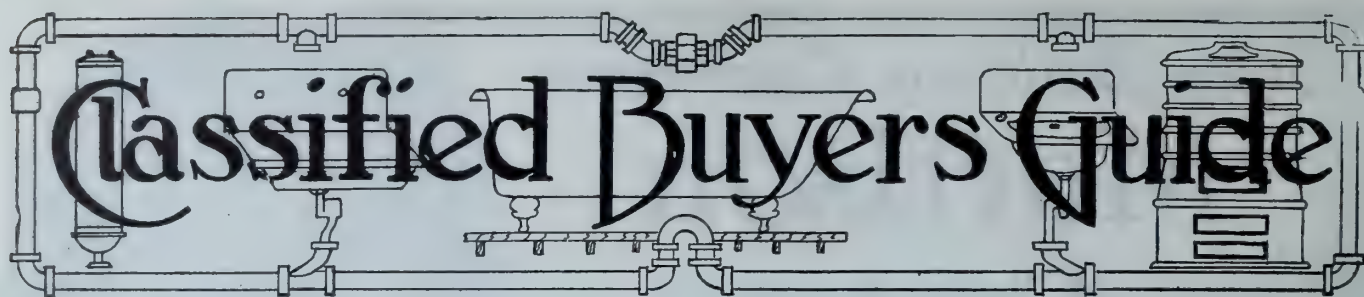
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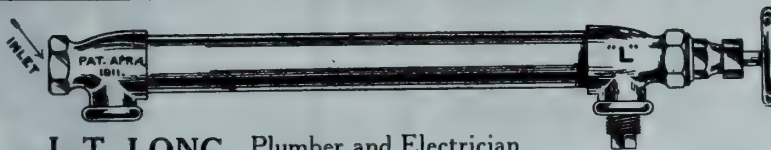
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 W. H. Cunningham & Hill, Ltd., Toronto.
- TESTING PLUGS**
 James Morrison Brass Mfg. Co., Toronto.
- THUMB SCREWS AND NUTS**
 J. H. Williams & Co., Brooklyn, N.Y.
- TOOLS**
 Wolverine Ltd., Toronto.
 Empire Mfg. Co., London and Toronto.
 James Morrison Brass Mfg. Co., Toronto.
 H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
 Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
 Trimont Mfg. Co., Roxbury, Mass.
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 United Brassfounders & Engineers Ltd., Manchester, Eng.
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 C. A. Dunham Co., Ltd., Toronto.
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THE LONG

Patent Steam Trap

There are many convincing features to point out to your prospective clients: properly set to drain, it cannot freeze; no valves are required other than those which admit steam to the apparatus to which the Long Steam Trap is attached.



J. T. LONG, Plumber and Electrician

127 4th Ave., Maisonneuve, Montreal

This effective steam trap is regulated to work against 1 to 100 pounds pressure. It will drain from 900 to 1,500 feet of one-inch pipe. This proposition will pay you—write now, while you have it in mind, for particulars.

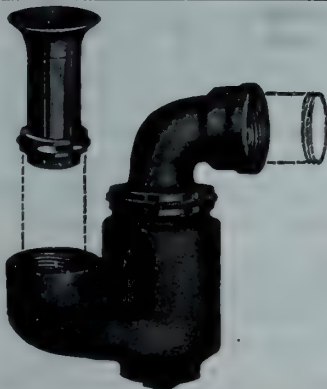


Figure No. 282

WOLVERINE CAST IRON TRAPS ARE CONSTRUCTED FOR SERVICE

Self Scouring Non-Syphoning
Adjustable

Wolverine Simplex Traps are superior to Lead Traps.
 For QUALITY—STABILITY—SIMPLICITY.
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WOLVERINE
—LIMITED—

76 NELSON ST.

TORONTO

HERE THEY ARE

The New C & H Tap Plugs



Our own exclusive design—turned from specially tempered steel Bar, genuine cut threads, 3 perfect cutting slots—every plug guaranteed to do the work.

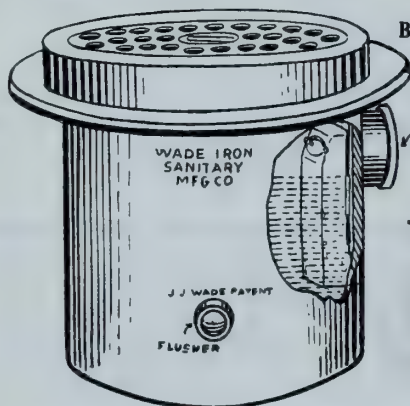
We have a complete stock of specialties including "C & H" Knife - Blade Cutter Wheels - Rubber Goods of all kinds - Hack saw frames and Blades - Hercules Drain Pipe Solvent, furnace repairs, etc.

Prompt attention to mail orders.

W. H. Cunningham & Hill, Limited

Sanitary & Heating Specialties

269 West Richmond Street - Toronto, Ont.



B Fig. 124 - Floor Drain

For Dairies and
Concrete Floors

Wade Floor Drain

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

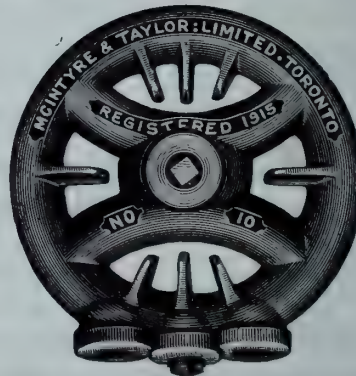
Write for Catalog "B"

Wade Iron Sanitary Mfg. Co.
551-553 Fulton St. CHICAGO, ILL.

Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor Drains and All
Descriptions of Iron or Gravel and Grease Basins.

M. & T. COILS

EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited
TORONTO

501-3 Queen Street W.

MONTREAL
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156 Lombard Street

INDEX TO ADVERTISERS

Amherst Foundry Co.	Inside front cover
Atlas Tank Works	44
Anthes Foundry Co.	6-7
Beaton and Caldwell	37
Burrow, Stewart & Milne Co.	35
Canada Metal Co.	9
Canadian Brass Co.	2
Canadian Combustion Co.	43
Canadian John Wood Mfg. Co.	4
Canadian Tube and Steel Products	44
Chamberlain Desolvo Co.	37
Crane, Limited	2
Cunningham, W. H. & Co., Ltd.	42
Dennis Wire and Iron Goods Co.	3
Dominion Sheet Metal Corp., Ltd.	1
Dunham Co., C. A.	5
Empire Brass Mfg. Co.	Outside front cover
Fittings Limited	6
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.,	44
Hause Mfg. Co., Ltd., Chas. F.	44
Hourd & Co.	44
Hoyt Metal Co.	37
Hall Zryd Foundry Company, Ltd.	
	Inside back cover
International Malleable Iron Co.	33
Jardine & Co., A. B.	36
Jenkins Bros., Limited	10
Katie Foundry	44
Kerr Eng. Co., Ltd.	36
Lord & Burnham Company	3
Long, J. T.	41
Marks & Co.	44
McIntyre & Taylor, Ltd.	42
Morrison Brass Mfg. Co., Ltd., Jas.	39
Mueller Mfg. Co., Limited, H.	31
Port Hope Sanitary Mfg. Co., Ltd.	22-23
St. Louis Technical Institute	37
Standard Sanitary Mfg. Co.	10
Spencer Heater Co.	4
Steel Trough & Machine Co.	44
Toronto Hardware Mfg. Co.	39
United Brass Founders	37
Vulcan Co., Ltd.	38
Wade Iron & Sanitary Mfg. Co.	42
Wallaceburg Brass	5
Warden King, Limited	38
Williams & Co., J. H.	43
Wolverine, Ltd.	41

OPPORTUNITY

Furnace Carburetors and Smoke Abaters

Increase your winter business
—Install "WEST" Furnace Car-
buretors and Smoke ABATERS.

This device absolutely saves
10% to 25% fuel. Naturally it is
proving popular — and easy to
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fits. Write now for agency and
literature.

Act at once

A few territories still open.

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Canadian Combustion Co.,
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43 Victoria St.

Toronto



Choose the Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

Williams' Stillson Wrench is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they 'bite' instantly, yet release readily.

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J. H. WILLIAMS & CO., Limited

"The Wrench People"

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes 1/8-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe
Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

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PUT IN
ANY
ROOM



PROFITS
IN
COUNTRY
TRADE

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing
—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
Tweed, Ont., Canada

Louis A. Payette, 304 University St., Montreal,
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Plumbing and Heating Supplies

Wholesale Only

Marks & Co.

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THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

Superior
Plain



Closest
Bend

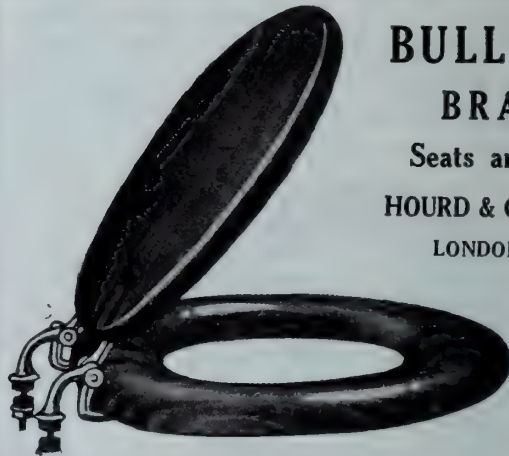
The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18 in. lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.



BULL DOG BRAND

Seats and Tanks

HOARD & CO., Limited
LONDON, CAN.



WE MAKE TANKS

FOR ALL PURPOSES

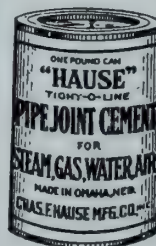
Air Receivers
Boilers (Hot Water)
Storage Tanks
Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

WRITE US FOR PRICES

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Works and Office:
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TORONTO



Chas. F. House Mfg. Co., Inc.

Manufacturers of

TIGHT-O-LINE PIPE JOINT CEMENT

SETS LIKE GUM
ALLOWS NO LEAKS

Makes pipe work easy Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

Ask your jobber for prices or write us direct.

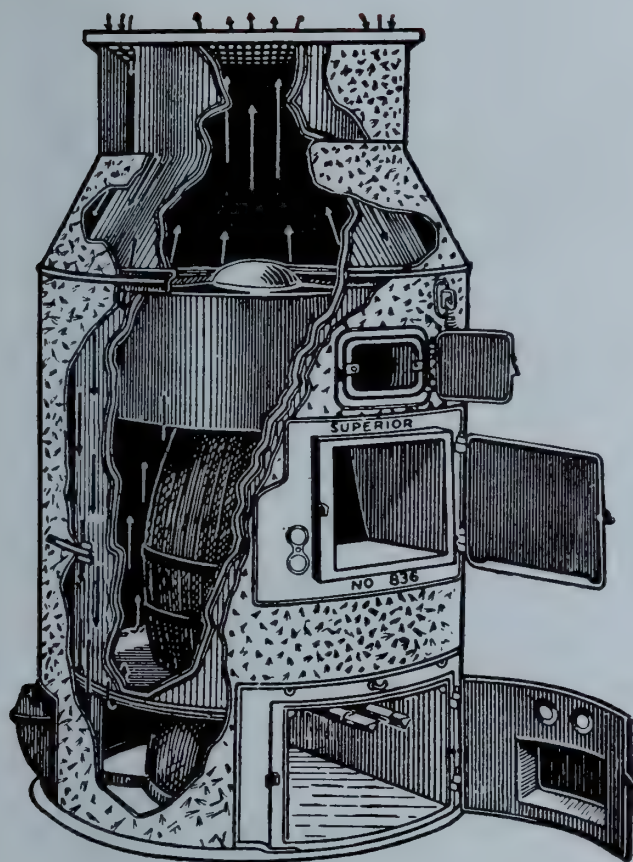
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The London Engine Supplies Co., London

PILOT SUPERIOR PIPELESS FURNACE

It Leads in Selling Points



Easy to install—A good mechanic can install it in one day.

Adjustable Collar. This is handy and often extremely valuable. It permits adaption to varying heights of cellars.

Direct-Connected Clean Out. This is another convenience and comfort for the user. Its advantages are too obvious to require comment.

Hot Blast. This acts as a carburetor, supplying the additional heated oxygen to make the combustion perfect.

The Dust Damper is a convenience that is much appreciated in keeping the dust from ascending from ash-pit to be deposited in the house.

Cast Iron Ashpit Bottom. A protection that makes it easier to shovel out the ashes with no fear of injury to the heating plant or cellar floor.

The Deep Roomy Ashpit permits a reasonable accumulation of ashes without risk of burning out the grate-bars.

Anti-Clinker Grate, the four-bar triangular type. This is the simplest and best grate ever invented.

Correctly Proportioned Combustion Chamber, a help and economy in saving fuel and yet an assurance of a warm, genial temperature in the house.

Fire Pot in Two Sections. There are no worries over expansion and contraction with its cracks and fissures.

Deep, wide Cup Joints assure solid, substantial construction with no flimsy connection between sections.

Hall-Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces.

Hespeler, Ontario

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The One Best Bet



One thing is sure. When you instal a Vitro "No Trouble" Tank you've done a good job. You have a right to feel proud of it. It's going to give a whole lifetime of satisfaction. It's going to be a lasting advertisement for the quality of your work.

"No Trouble" isn't a pet phrase. It's an established fact in regard to Vitro Tanks. Every part of the Vitro Tank is designed and made to avoid trouble. It is a *perfect* tank. Outside--a handsome molded, seamless, nonporous tank that can never leak or corrode—inside a scientifically accurate piece of mechanism.

It pays to instal the best. Choose Vitro for every particular job.

VITRO
NO TROUBLE
TANK

*Every Tank Tested
Every Part Perfect*

Galt Brass Co., Ltd.

Galt Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, DECEMBER 1, 1921

No. 23

You Cannot Imitate Oak



TANK A 11 D

There is nothing in the bathroom so pleasing to the eye as a **genuine oak tank**.

The Empire Tank A 11 D shown in the illustration is **real oak**. The glossy finish brings out the beautiful grain to good advantage.

This Empire tank is lined with ten ounce copper. Internal fittings are made of best grade red brass, and all connections are machined to standards assuring a minimum of labor in setting up.

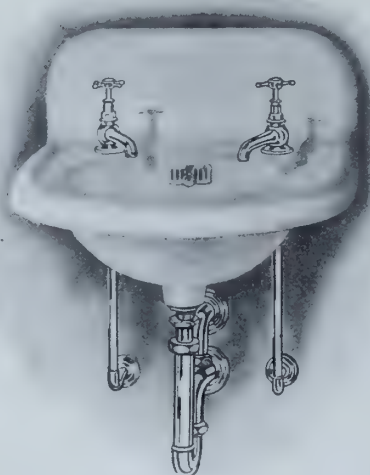
All Empire fixtures are thoroughly tested before leaving the factory and are backed by the Empire guarantee.

We guarantee prompt shipment. Write for catalogue.

"If it's an EMPIRE product you know it's right."

Empire Brass Manufacturing Co., Limited

LONDON and TORONTO, CANADA



One Piece Porcelain Enamel Lavatory



"Shamrock" Porcelain Enameled Bath

Beauty - Durability - Service

Beaver Brand

Porcelain Enameled Ware

The "Beaver" Porcelain Enameled, One-Piece Lavatory, is illustrated above and to the left. It has D-shaped Basin, Patent Overflow and Shell Soap Dish, on concealed brackets. Complete with N.P. overflow strainer, chain stay, plug and stopper. Overflow strainer is one feature.

Dimensions—Size of Lavatory, 17 x 19 inches; Basin, 10 x 14 inches; Length of Back, 19 inches; Height of Back, 7 inches.

Roughing in Measurements—Centre to

centre of supplies, 10 inches; Centre of outlet to wall, 7½ inches; Centre of supplies to wall, 3 inches.

"Beaver" Porcelain Enameled Bath, with 1½-inch roll rim, for Fuller double bath cock, connected waste and overflow, painted exterior.

Dimensions—Width over rim, 25½ inches; Inside width, 22 inches; Overflow hole, 2½ inches; Height to top of rim, 21¾ inches; Inside depth, 15½ inches; Supplies, 1¼ inches; Centre to centre of supplies, 3⅜ inches.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N. S.

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Ontario:
Monarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba & Northwest:
E. B. Plewes, 197 Princess
St., Winnipeg

THE PROOF OF THE PUDDING

Time and Service have demonstrated that Pure Iron Galvanized Sheets are more durable than the ordinary Steel quality—

Time and Service have also demonstrated that ordinary Steel Galvanized Sheets are greatly improved when it comes to the matter of resisting corrosion, by adding a small per centage o f copper.

NOW—

Toncan Metal since 1908 has been a leader of the “PURE IRONS” and now since copper is added, it combines the virtues of both groups. In this it is unique—

No other “PURE IRON” Sheet has the Copper Content—

No other Copper Bearing Sheet has the Pure Iron analysis—

OUR PROPOSAL—

Write us on your business stationery stating that you are interested and we will send you all charges prepaid a full size sheet No. 28 Gauge Galvanized Toncan Metal. Try this in the worst place you know and thus find out for yourself the truth of our slogan—



ENDURES AND INSURES

This offer is limited to three hundred metal workers so do not delay.

Dominion Sheet Metal Corporation, Limited

Hamilton - Canada



Just wish you all could have visited the Made-in-Galt Exhibition, and seen our exhibit.

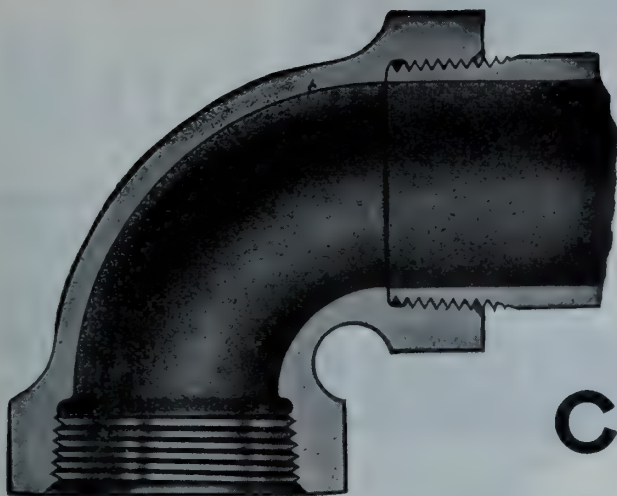
For while we **showed** our lines of brass goods we **featured** closet seats—closet seats of all kinds—mahogany—oak—and glistening white; closet seats of all styles, but all good, honest value seats that we were proud to show.

And we learned a lesson—that everyone is interested in closet seats, particularly when attractively displayed. Even the kiddies want to know all about them. For closet seats have the appeal of appearance. Take the snow white article—who could help wanting one in their own home when they see it? For the idea of “sanitary” is definitely linked up to the idea “white”—and nowadays it **must** be sanitary.

Canada Brass Co., Limited

Galt, Ont.

Toronto



CRANE

DRAINAGE FITTINGS

ARE MADE WITH A SHOULDER AND ARE THE SAME INSIDE DIAMETER AS WROUGHT PIPE. THE PIPE SCREWS IN UP TO THE SHOULDER MAKING A CONTINUOUS PASSAGE, LEAVING NO POCKETS IN WHICH SOLID MATTER CAN LODGE.

We recommend the use of our drainage fittings for Vacuum Cleaning installations. Fittings that are ordinarily tapped pitched for drainage work can be furnished without pitch to order.

All drainage fittings are recessed to allow easy entrance of the pipe.

*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe,
Plumbing and Heating Supplies.*

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MONTREAL

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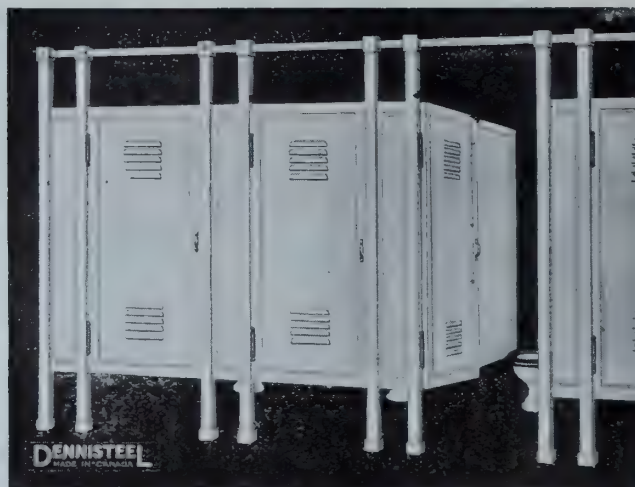
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43



The Public are Demanding

DENNISTEEL
Made in Canada

Steel Lavatory Compartments

—“Hygienic—Fireproof—Non-Markable”—for Schools, Factories and Public Buildings.

In principal cities all over Canada this sanitary equipment is installed in many of the public buildings. The people have learned its advantages.

It is the sanitary engineer who is familiar with Dennisteel Lavatory Compartments who will secure the order for the next public building in your district.

We are the only firm in Canada specializing in the manufacture of Steel Lavatory Compartments.

Write for new illustrated circular, showing how Dennisteel Compartments harmonize with the most elaborate fixtures and surroundings.

We Also Make

Steel Lockers, Steel Cabinets, Steel Shelving, Steel Chairs and Stools, etc., Ornamental Iron and Bronze, Commercial Wirework of all Kinds, General Builders' Ironwork, “Boca” Solid Steel Sash.

Write for folders

**THE DENNIS WIRE AND IRON
WORKS CO. LIMITED
LONDON
CANADA.**

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Windsor
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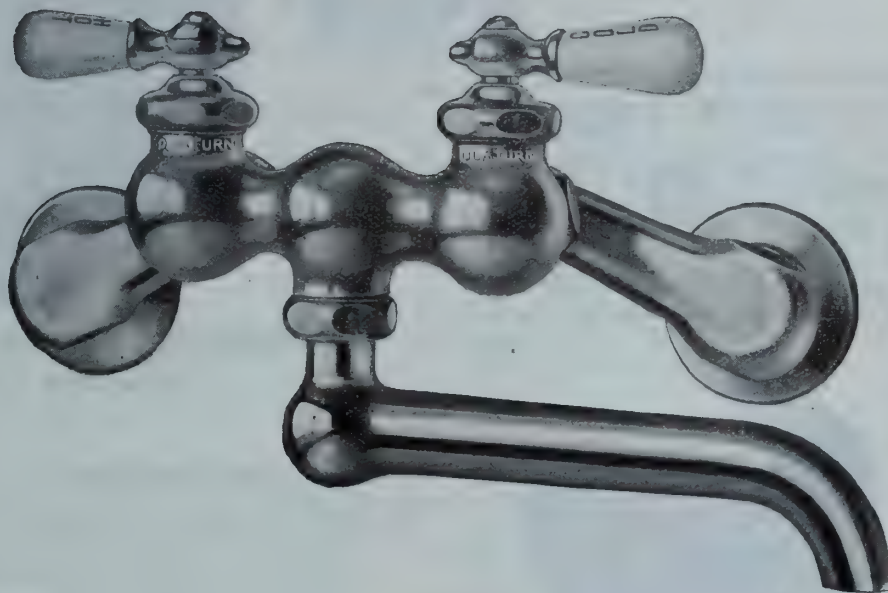
Halifax
Toronto
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Montreal
Hamilton
Calgary

Matchless Quick Faucets

CLASSIC QUATURN MIXING FAUCET

With swinging spout for Kitchen and Pantry Sinks, Nickel Plated, with China Indexed Handles. For Sinks with Cock Holes 8 in., 10 in. or 12 in. centre to centre. Distance between inlet connections centre to centre adjustable from 4 in. to 8 $\frac{3}{8}$ in. on 8 in. fixtures, to 10 $\frac{3}{8}$ in. on 10 in. and to 12 $\frac{3}{8}$ in. on 12 in. fixtures. Fits any Sink and extends into Sink only 2 $\frac{3}{8}$ in. The spout has a radius of 6 in. and may be pushed back out of the way.



A - 100

The above uniform in *Working Parts* with our full line of Quaturn goods having interchangeable and replaceable *Working Units*:—

QUATURN BIBBS

QUATURN BASIN COCKS

QUATURN STOPS

QUATURN BATH COCKS

QUATURN PANTRY COCKS

QUATURN BALL COCKS

Write for Special Quaturn Circular

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

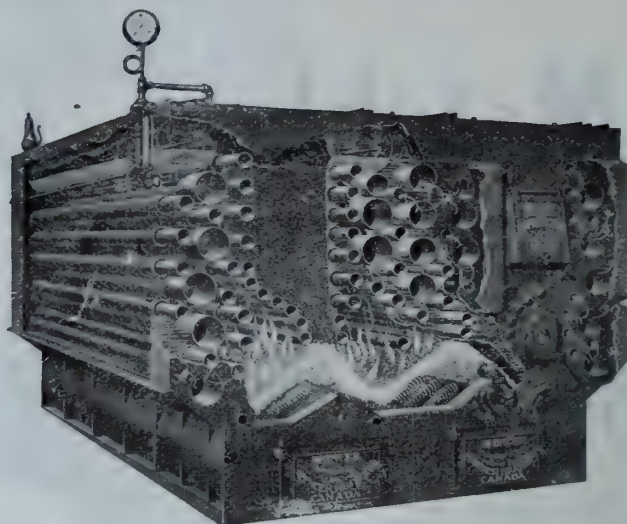
TORONTO

Mr. L. N. Vanstone, 10 Wellington St. East
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WINNIPEG

Moncrieff & Endress, Ltd., Galt Bldg.
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Talking SPENCER MAKES MANY A SALE



SPENCER WATER-TUBE STEAM BOILER
Capacities 1,000 to 10,000 sq. ft.



HOUSE SIZE

Some of the Reasons--

- 1st—**Every Owner** of a Spencer Self-Feeding Boiler saves from **THREE to FIVE Dollars** on every ton of coal required to heat his premises, and is **DELIGHTED** with the constant service he receives from the Boiler with so little attention.
- 2nd—This small-sized No. 1 buckwheat coal which the Spencer burns successfully, is always available. The only other known types of boilers that will burn this extremely low-priced fuel are the mechanically-equipped boilers, and many factories are now equipping their boilers to burn coal in a powdered condition. Of course the Spencer will successfully burn fuel in the larger sizes.
- 3rd—The magazine of the Spencer holds a 24-hour supply of fuel. The fuel feeds at a tempered condition in thin fires over the arched grates in exact proportion as the fuel is consumed, thus eliminating waste and allowing perfect control of firing conditions.
- 4th—Spencer Boilers are known to maintain temperatures for a period of 48 hours in the coldest weather, without attention.

THOUSANDS of Spencer Boilers are now in operation in various parts of Canada and the United States. We can refer you to almost every known

type of building where Spencers are successfully operating. We Manufacture in Canada the Spencer Cast Iron Sectional type of Boilers in ten different sizes, ranging in capacity from 600 square feet to 3,600 square feet, and the Spencer for steam is of fire and water-tube steel construction, ranging in capacity from 1,000 to 10,000 square feet, there being twenty sizes. Let us co-operate with you on the sales in your district. There is a SPENCER for every heating requirement.

Give us your address—NOW.

Spencer Heater Company of Canada, Limited

68 Adelaide Street East

Toronto, Ontario

WINNIPEG, MAN.

PLANT

MONTREAL, QUE.

185 Portage Ave., E.

Penetang, Ont.

71 St. James Street

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—not only from Halifax to Vancouver, but from other countries as well. For Sanitary Engineer has a considerable circulation in Great Britain and the British Dominions—as well as in the United States.

AUCKLAND, Sept. 23rd, 1921.

New Zealand.

The Presto Mnfg. Co.,

Montreal, Canada.

Dear Sirs:

Would you kindly forward me particulars of the Presto Automatic Water Heater as manufactured by you and advertised in "Sanitary Engineer, Plumber and Steam Fitter of Canada."

Some idea of landed cost would be an obligation. Trusting to hear from you, I remain,

Yours faithfully,

(Signed) ROBERT KIDD.

19 Arcadia Rd., Epsom,

Auckland, New Zealand.

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907

PUBLISHED TWICE MONTHLY

Vol. XV. PUBLICATION OFFICE, TORONTO, DECEMBER 1, 1921 No. 23

CONTENTS

Discuss Question of Showrooms for Plumbers	11
Policy of Unions Scored at Montreal Meeting	12
Lower Costs to Assist 1922 Trade—Displaying Plumbing Goods in Christmas Trade	13
How Plumbing Lines Will Be Marked	14
Brazing and Working Out Taper Joints	15
What Do You Mean, Overhead?	16
Water Waste From Defective Plumbing	17
Small Set of Books for Plumbers	18
Sewage Disposal for Small Communities	19
Editorial Comment	20
Kingston Central Heating Plant Described	21
Tremendous Influence in Re-Establishment of Normal Business ...	22
News From Here and There	23
Contracts Awarded for Plumbing and Heating	24-26
Market Conditions and Tendencies—Montreal, Toronto, Winnipeg.....	27-36

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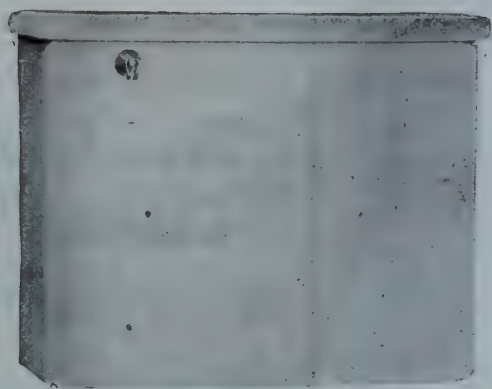
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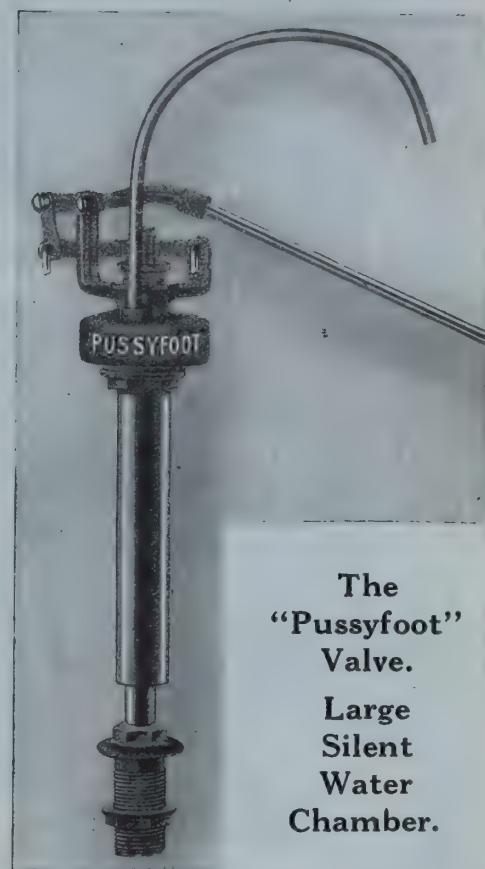
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Argument Over Showroom Question

Manufacturers and Wholesalers of Plumbing Supplies, Along With Master Plumbers, Set Forth Other Angles of Question Introduced by Sanitary Engineer—Some Merit in the Idea, But Many Obstacles Presented When Subject Is Fully Outlined

DISCUSSING the advisability of centralizing showrooms of plumbing goods and placing them under the control of the wholesaler, a Toronto manufacturer of plumbing supplies expressed to Sanitary Engineer the following opinion:—

"I am of the opinion that this would not work out to advantage. In the first place it is doubtful if you could get the different jobbers to agree on a proposition of this kind, as some jobbers push certain lines more extensively than others and the particular line in which each jobber was interested would be the one that he would want shown to the best advantage. I believe it has also been the experience of jobbers who carry the expense of a showroom that it does not pay interest on the money invested. There are a certain number of people who are building a better class of house and go to these show rooms to pick out their fixtures but for 75 per cent of the houses that are built where the ordinary fixtures are used the plumber invariably orders the goods over the telephone and never goes to the trouble of picking out anything special.

"You are aware of the fact that a very fine showroom was closed up a few weeks ago as they evidently found that it was not a paying proposition. If the Trade Extension Bureau or some other organization ever succeed in educating the plumber to sell better quality of goods and try and educate the public to use a better class of goods it might then be a proposition that would work out to better advantage."

Some Good Points

A Western Ontario manufacturer of plumbing supplies states: "No doubt there are many excellent points if the scheme could be carried out but it seems so radical in certain ways that our opinion is it would be very doubtful if it could be put into effect without many plumbers failing to see the angle at which you wish them to size up the

A MISAPPREHENSION

The publication in the November 1, issue of Sanitary Engineer of an article entitled, "Wholesaler a Plumbing Merchandiser," and based on an interview with "an Ontario manufacturer and wholesaler of plumbing supplies" has caused more talk and aroused more interest among certain branches of the plumbing trade than anything which has occurred for some time. Apparently some readers have assumed that the opinions expressed in that article were those of Sanitary Engineer. These readers are reminded that the function of a trade newspaper is to set forth the news and opinions of all branches of that trade for the reader to apply whatever he finds of particular value to his business. The opinions of Sanitary Engineer and any other paper are expressed through the columns of the editorial page only.

It is the intention to present all phases of the subject introduced in the article referred to. To this end there are found on this page the opinions of certain other manufacturers, wholesalers and master plumbers on this important subject. Other views will be given later and it is hoped that the debate will be productive of some helpful pointers for all engaged in this branch of trade.

Sanitary Engineer is not sponsoring the opinion that showrooms for plumbers should be abolished. If it were it would hardly be reproducing in every current issue illustrations showing how such showrooms might be arranged to advantage.

If you do or do not agree with the opinions expressed, do not be afraid to say so and present your views on all sides of the question. Constructive criticism is what is wanted in these times, and the wheat can be very easily separated from the chaff when the material is available to work on.

idea. We can see that it would be of great benefit to many of them but it would tend to take away any individuality which a plumber might have injected into his business. We think it would not work out as well as it appears on the surface."

A Central Ontario manufacturer says: "We are a little surprised to note the sentiments expressed by the manufacturer in question, since the plumbing organization throughout Canada have been spending all of their efforts in the last two years to influence the plumber to be a merchant and to fit up an attractive showroom. In addition to this the Trade Extension Bureau of the U.S. has been carrying on a splendid campaign in this direction and we think that in Canada as well as the United

States they are working in the right direction.

"We fail to see how a central showroom could be handled satisfactorily, and again, the jobber and manufacturer should not, in our estimation, be obliged to extend his selling activities any further than the plumber. It is up to that individual to carry on from this point."

Selfish Motives

An Ontario master plumber makes the following statement:

"I read with some interest and also some amusement the views put forth in your issue of Nov. 1 by a manufacturer and wholesaler of plumbing supplies who would make the contractor a hewer of wood and drawer of water for the

alleged benefit of the public and the good of the plumbing supply business. I wonder how long the public would benefit if this man could put his scheme into effect and had his own way in arranging prices.

"His suggestions are so evidently prompted by selfishness that I do not think they are worthy of consideration.

"I would however, like to draw his attention to a few points, the first of which is that if any middleman between the manufacturer and the consumer is to be eliminated the wholesaler is the one who can best be spared.

"I think our friend has allowed himself to go off at half cock, without giving the matter proper consideration. His vision evidently does not extend beyond his own immediate field, for I cannot see how he would handle out of town business unless he had a branch in every town in which case the burden of overhead expense would not be lightened, but merely transferred from the dealer's store to his own. Or does he think that Mrs. Brown would travel one hundred miles to select a kitchen sink from his show room, to replace her old one?

"And I presume of course that he would be willing to collect the bills from the consumer.

"To put this matter in a nutshell, as I see it, this man is merely longing to get his feet right up into the trough with his nose buried in the cream. He seems disposed, however, to let the contractor have the skimmed milk—as long as there is no cream left in it.

"I think our friend was ill advised to put forth such views for publication, for they do him no credit, nor the business with which he is connected which ought to be a big business run by big men.

(Signed) "Live and Let Live."

Scheme to Kill Trade.

Another master plumber in Ontario makes the following statement: "I cannot quite understand what is meant in the article referred to. Is it the idea for the wholesaler to handle all plumbing goods selling wholesale to the consumer and have the plumber be the goat to instal these without any profit on the merchandise he is installing? If I am interpreting this right it looks to me as though it was about the best scheme to kill the plumbing trade that could be brought about. If this were the case in our city there would not be any plumbers left in it that are in business today.

"I hope that this has not been suggested and that I am wrong in my interpretation. I trust there will be further publication given to this. If this is the thought there is no doubt that this would not work out at all through the country, and we think there are plenty of carpet baggers in Toronto

without trying to put them all on that level."

A Toronto master plumber is absolutely opposed to the policy of the wholesaler handling the display to the exclusion of the plumbers.

He believes that this would be contrary to all tendencies of the past 10 years when the plumbing trade has made its greatest progress.

The plumber only lately began to get on a real merchandising basis. This in his opinion would be a step backwards from the standpoint of sales. He points out that the effect on the general public of only one or two central show-rooms instead of 70 or 80 scattered show-rooms, even though these latter are not on nearly as elaborate a scale, would tend to cut down the general volume of sales as it is a well known fact that repetition in advertising pays. This also would naturally apply to displays as a display is nothing more nor less than one form of advertising.

He presumes that the cause for the desire on the part of this manufacturer to cut out display room is because the necessity is realized for cutting down

somewhere the eventual cost to the consumer.

He points out in this connection that it is absolutely foolish to consider this matter only from the angle of the plumber himself who is the last in the sales chain, but he believes we should look at the matter when endeavoring to cut down cost of the manufacturer and distribution through all its different phases.

It will be seen that the general spread of cost does not depend so much on the margin charged by the plumber himself as in the intermanufacturing men and by the jobbers or wholesalers.

In short he believes that for the plumbers now to go back to the old idea of no showroom and merely having any "hole in the wall" place of business would be to put him in the same class now occupied by the paper hanger.

He is firmly of the opinion that the master plumber is not only a mechanic but also a merchant, and that the plumbing business will not reach the height of prosperity until the whole thing is put on a proper merchandising basis.

Policy of Unions Scored at Montreal Meeting

Present Demands Said to Be Excessive—More Activity in Building if Labor Cost Was Not So High—Housing Plan Discussed for Relieving House Congestion and Unemployment

MONTREAL—Contrary to those who maintain that an improvement now exists in labor insofar as the mechanic or laboring man is doing an honest day's work for the high wages paid him, the present attitude of the Trade Laborers' Union came under some severe comment at a meeting of the committee dealing with the problems of Government financial assistance to aid in the building of cheap homes in Montreal. The object is to relieve the local housing problem and at the same time to help the present unemployment difficulties.

Those present at the meeting included the mayors of the different municipalities adjoining Montreal, all of whom are members of the Metropolitan Commission, also representatives of the Chamber of Commerce, Board of Trade, The Builders' Exchange and a number of charitable associations.

Opening the meeting, the Chairman said they had been called together to consider the housing problem, in relation to the increasingly difficult labor and unemployment problems, with only 14 per cent. of the people of Montreal owning their own homes. He believed the Government housing idea was reasonable, provided it was not spoiled by interference from outside influences.

It was pointed out that three problems were to be faced; first, unemployment; second, lack of housing accommodation; third, the idea of securing their own homes for people, instead of the almost universal system of renting. The speakers declared that the cessation of building operations here and elsewhere, has been caused by the determination of the Unions to fight for the highest possible wages, while at the same time restricting the output of the workers in order to create a larger number of jobs. It was stated that if the workers were willing to give a decent day's work for a decent day's wage, the building troubles would be speedily solved, but the Unions would not permit this consummation.

Enormous Unemployment Costs

Figures were computed showing the enormous cost of unemployment per month. If the Government by a loan could aid building so as to relieve this situation, even though the cost of the houses was more than normal, it would be better than a complete loss occasioned by unemployment doles, which were considered inevitable this winter. These doles were an enormous loss, but if the money was spent on building it would not be completely lost.

Lower Costs to Assist 1922 Trade

After Quiet Months of Winter, More Activity Is Looked For.
Practically All Plumbing Supplies Lower in Price—Cheaper
Labor Now Being Offered

MONTREAL.—Local plumbers and tinsmiths are now busily engaged in jobbing work which usually causes much activity in the trade at this season of the year. Almost without exception, SANITARY ENGINEER was informed that more demands were now being made for this class of work than last year, and steady work was already promised well until the close of the year. Apart from the repairing of heating systems, furnaces, stoves, etc., before the very cold weather sets in, there was also a good amount of smaller plumbing contracts now being installed. It was pointed out that the apparent lack of larger construction work would necessarily mean that many plumbing establishments will not be in as fortunate a position for a whole winter's work as in other years, but the noticeable increase in the past few weeks of smaller erections lent en-

couragement. Locally, it is now recognized that more building of this class is now under way than in the earlier months of the year.

A Better Year Ahead

The general opinion is that after the quiet winter months, 1922 will open up on a much better basis for the trade. The appearance of more building in the late months this year gives every reason to believe that much more will follow when the weather permits. Undoubtedly the trend of many lines of plumbing supplies, when price declines have brought practically all commodities to lower levels than prevailed when building was contemplated early this year, will act as a stimulus for next season. Assisting also, will be lower labor cost. Through a slight reduction and a marked improvement, work will not be such an obstacle which the average man has had to take into consideration. Last year the handicap existed when certain

branches of labor were not satisfied with asking high figures, but took further advantage by not giving anything like a full day's work in return. This has greatly improved, and efficiency is now on a much higher scale.

Guarding Against Cheaper Labor

Dealing with the standing of the man in the shop in comparison with the labor situation in the trade a year ago, Alex. Charette, of Charette & Frere, stated that there now was a considerable amount of cheaper labor obtainable. It was unfortunate the plumbing trade was represented in the unemployed ranks to-day, although not to the extent, perhaps, as some other branches.

"Only this morning two men called and offered to work for half the figure we are now paying our men in the shop," said Mr. Charette.

It was pointed out how this had to be
Continued on page 14

Plumbing Goods for Christmas



The Christmas appeal has been taken advantage of by numerous plumbers in suggesting the gift of some bathroom accessories. These are times when gifts of practical value are most appreciated and many plumbers have found that an attractive display for Christmas, such as that shown herewith by Ecclestone and Bates, Ltd., Bracebridge, Ont., pulls considerable business. Mirrors, glass and enamelled shelves, towel bars, glass and brush holders, sponge racks, showers, etc., all make suitable and practical gifts. The window shown herewith is tastefully decorated with streamers and holly leaves.

How Plumbing Lines Will Be Marked

Marking of Country of Origin on Imports of Plumbing Goods
Outlined Fully — Special Consideration for Imports Ordered
Prior to October 1, 1921, Which Are Entered by July 1, 1922

SOME AMENDMENTS have been made to the original regulations of the Department of Customs concerning the marking of country of origin on imports. Some of the exceptions have been made more definite including the following which will not be required to be marked:

Metallic goods not intended for sale to consumer in condition imported but merely raw material for use in manufacture of articles in Canada; crude rubber, crude clay. Partly manufactured materials to be further manufactured or finished in Canada before passing to consumer are also excepted as well as completely manufactured parts for incorporation into articles of Canadian manufacture, provided in both cases that there shall be incurred in Canada at least 25 per cent. of the total cost of production of the article going into consumption in Canada into the manufacture or construction of which such partly manufactured materials or completely manufactured parts shall have entered. Partly or completely manufactured parts for use as repairs to articles made in Canada or imported and already indelibly marked with other country of origin are also excepted.

The most important amendment is as follows: "Goods bona fide ordered prior to October 1, 1921, shall not be subject to the additional duty of 10 per cent. ad valorem to be levied on the value for duty purposes provided such goods are imported into Canada prior to July 1, 1922, but such goods shall not be released from Customs' possession until they have been marked, stamped, branded or labelled with an indication of the country of origin as required by the provisions of the Act under Customs supervision at the expense of the importer."

Specific plumbing lines which must be marked according to the regulations are listed as follows:

PLUMBING SUPPLIES—

1. Each of following to have required indication of country of origin on an adhesive label attached thereto or stencilled or stamped thereon: Tanks, Toilet Seats, Sinks, Laundry Tubs, Bath Tubs, Urinals, Porcelain Wash Basins, Laundry Trays, Sink Trays, Fireclay urinals, Fireclay Sinks, Fireclay Closet Bowls, Fireclay Baths.
2. Following to have required indication stamped or stencilled or diesunk on each article: Seamless Copper Float Balls, Brass Faucets.

3. Following to have required indication on each bundle, package or container: Malacca Sewer Rods, Lead Bends, Lead Traps, Flexible Tubes, Putty, Tinned Pipe Clips, Rubber Gas Tube Ends, Overflow Fittings, Plumbers' Oakum, Floor & Ceiling Pipe Plates, Automatic Air Valves, Radiator Valves, Towel Bar Brackets, Brass and Cast Nuts, Canopy Flanges, Flush and Supply Pipes.

FURNACES, STOVES AND HEATING APPLIANCES—

1. Stoves, Fireless Stoves, Furnaces to be marked on each article.
2. Furnaces imported unassembled or in a number of pieces comprising one complete article to have indication of country of origin on name plate or principal part of each complete article.

METALLIC GOODS—

When not imported in compliance with regulations excepting articles entered as repairs or for incorporation in completed article in Canada, following articles to bear mark of country of origin: Valves, Steel Stamp Dies, Cast Iron and Steel Die Shoes, Cylinder Keys, Cast Iron Strap Hangers, Malleable Iron Pipe, Pipe Fittings.

Following articles answering same description as (1) to bear mark on each separate package or container: Ball Bearings, Roller Bearings, Tin Foil, Mineral Wool, Manganese, Carbon Flour, Nails, Screws, Rivets, Bolts, Lock Nuts, Spikes, Thumb Screws, Hose Nipples.

Following articles to be stamped, stencilled or diesunk, name of country: Pumps, Hose Couplings, Door Closers, Door Closer Brackets

Following articles, where capable, to have mark and where incapable of being marked to have required mark on each package or container: Art Metal Work.

Following to have mark stamped, stencilled or diesunk on each length or piece thereof: Copper Bars for window frames and sashes; Mouldings for window frames and sashes; Corners for window frames and sashes.

METALLIC GOODS (EXEMPTIONS)—

Following are not required to be marked: Babbit Metal, Pig Iron, Bars, Cold Rolled Strip Steel, Bar Iron, Silver Bullion, Zinc Spelter, Spiegel Iron, Slab Zinc, Bauxite Ore Concentrates, Crucible Steel, Barytes, Pig Lead, Spiegeleisen, Tin Ingots, Copper Ingots, Aluminum Ingots.

MICA—

Following to have mark on each container: Mica Pulp, Mica Dry.

TINWARE—

Each article of tinware to have required mark stamped, stencilled or diesunk thereon.

LOWER COSTS TO ASSIST TRADE

Continued from page 13

guarded against, especially at this season. While work appeared plentiful at present, there was the usual quiet spell of winter ahead, and the men now employed must be protected as much as possible when their work had been faithfully done in the busy months. There were times when it appeared that the journeyman gave little thought to his employer when labor troubles arose between them, but this was by no means general and in most shops there was a certain family feeling existing. Very often, no doubt, the man applying for work was equally as good a mechanic as the men already employed, and while for the moment it offered temptation to take on this cheaper labor, there were conditions existing to-day that would not allow it.

TO EXTEND KITCHENER

WATER WORKS

Kitchener, Ont.—A great deal of attention has been accorded a communication from the water commissioners asking that a bylaw be passed at the next meeting setting aside the sum of \$185,000 for the issue of debentures to provide funds for the necessary extension of the waterworks system. Chairman Breithaupt of the commission outlined the work contemplated so that this city would have an ample water supply and improved fire protection.

Mr. Breithaupt declared that all are aware of the necessity for more water. At present, he said, part of our supply comes from Waterloo. We are under contract to take a certain amount every day and as the contract runs until July 1923, now is the time to go ahead with the necessary work.

It is the intention of the commission,

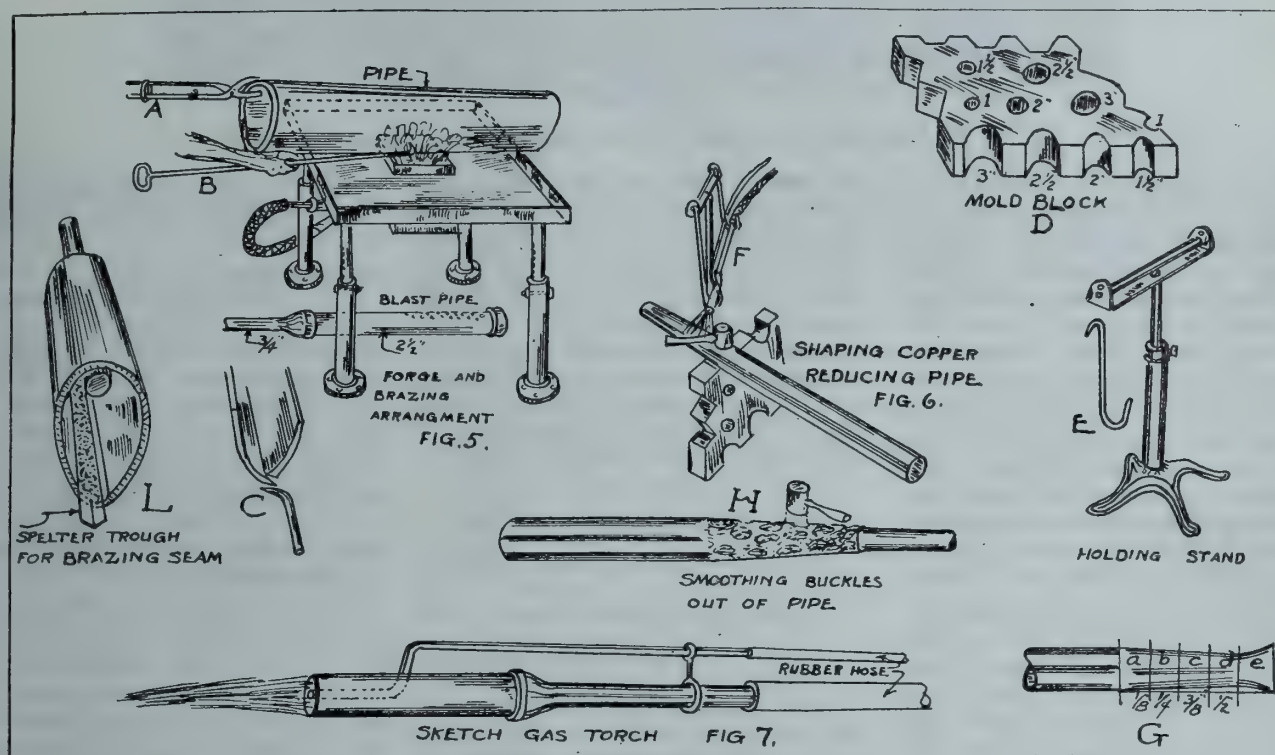
providing the council and ratepayers sanction the bylaw, to build a million-gallon reservoir near the wells on Strange St. A new high pressure main should be put down on Wilmot St., and carried down to the centre of the city. This main will have to be laid at once as the street will be paved next year. With the new reservoir at Strange street and with the present storage equipment in other parts of the city we would have ample pressure and water to fight a serious fire.

TO INSTAL HEATING PLANT

Toronto.—Plans were arranged for enlarging the church and installing a new heating plant at an approximate cost of \$15,000 at a special vestry meeting of St. John's Anglican Church, Norway.

Brazing and Working out Taper Joints

By O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Missouri.



THE matter of brazing copper is a very interesting knack or as some people call it art. It requires extreme watchfulness and a steady hand.

It is related on first handed authority that when coppersmiths were so much in demand during the war period, many of the coppersmiths took undue advantage to protect their little secrets, and thereby also added their share to the increased costs of producing work.

As an example, the writer is well acquainted with one particular workman who had done coppersmithing, and was somewhat helpful with it as well as being an extremely skilled mechanic.

At first, he was given an elbow to hammer out that some other person had almost ruined. When this elbow was worked out in a far more perfect state than many of the other coppersmiths felt possible, this party was given some pipes to braze similar to that which we show in figure 5, although with different equipment.

As the mechanic and helper were progressing nicely and had the entire seam almost brazed with the exception of about 4 or 5 inches from one end, one of straw-bosses or foreman came around, and turned on the air, thus causing the fire to flare up at the moment the spelter was on the edge of melting and as a result of the intensified heat, a hole was burnt in the pipe.

To exercise the foreman's prerogative, he goes to the superintendent of the plant and complains that such and such a workman is spoiling the work, and as a consequence this particular workman

was discharged from the department and transferred to another department, where he distinguished himself above 300 other mechanics, who looked to him for getting out the work.

This item is not mentioned as one particular instance, but there have been many such petty selfish practices come to the ears of the writer, and the main feature in bringing this out is the harm a person can do to a piece of pipe with the smallest meddling while the work is in progress.

It would be far more helpful to the coppersmith trade, if these men who profess practical knowledge would give some of their fellow men a lift, rather than stunning them by petty practices, which in no wise helps the individual, or the trade. Because in many instances where a man has worked at a line of work for 3 or 4 years, or even that many months, he dislikes quitting it and hence, will stay with it, getting by with what little he knows. Hence, a friendly conversation will go a great ways to uplifting the coppersmith trade.

In brazing of copper, borax is used as a flux, similar to acid or rosin, is used on galvanized iron or other metals. This borax flows when heated, and makes a greenish color, and cleans the copper so thoroughly that as soon as the spelter begins to flow the spelter will fuse with the copper.

Where Copper Melts

It is interesting to know that copper melts at from 1948 to 1950 degrees Fahrenheit.

Spelter is a mixture of zinc and cop-

per and this makes brass, so spelter is in reality brass. Now this spelter is of different qualities, governed by the percentage of zinc mixed with the copper. The more zinc is used, naturally the easier the spelter will melt, and of course, the more brittle will the seam become. And the more copper in spelter the harder it will melt. But where 50-50 of zinc and copper is used, the spelter will flow much before the copper would melt. Often a percentage of 42 and 68 is used as well as other percentages.

As copper melts at about 1948 degrees, it becomes quite brittle at about 1650 degrees Fahrenheit. Zinc melts at about 786 degrees and vaporizes at 1684 degrees Fahrenheit. Brass melts at 1742 degrees while bronze melts at 1652 degrees. Very often silver is used in brazing and this melts at 1562 degrees.

In addition we may say that tin melts at 449 degrees; lead at 621 degrees; aluminum at 1212 to 1215 degrees and aluminum forms an oxide known as aluminum, whose fusion and temperature is 5400 degrees. Gold melts at 1949 degrees; or the same as copper, while gray cast iron melts at 2192 degrees; wrought iron 2730 degrees and platinum at 3232 degrees.

It is interesting to remember these fusion points of metals, especially for the coppersmith; not so much that he can judge the heat by it at the forge, but as a point of technicality.

Now copper is such a metal that it hardens by hammering and softens by heating. When heated above a cherry

Continued on page 26

"What Do You Mean by 'Overhead'?"

Many Sanitary Engineers Have Very Hazy Idea of What Overhead Expense Means in the Plumbing and Heating Trade—A List of Overhead Expenses Which Might be Kept for Handy Reference

By C. D. Henderson, Henderson Business Service, Ltd., Brantford, Ont.

THE DICTIONARY defines the word OVERHEAD as (above one's head) and no doubt this is where OVERHEAD EXPENSE got its name because it is unfortunately too true, that this all important matter goes over the heads of most of us.

Although some Trade Papers have given publicity to the matter during the past few years and it has been cussed and discussed at Association meetings time and time again, there is still only a hazy idea existing in our minds as to the fundamental principles behind it—What properly constitutes Overhead Expense—and an entirely wrong conception of the proper method of including it in the Selling Price.

The clearest explanation of Overhead Expense to my mind, is as follows: Any Payment, Obligation or Expense Contracted for That Cannot be Charged Directly to the Customer. To make this clear—Suppose I sell a ½" Bibb. Outwardly there is a charge for the bibb only, but indirectly, there should also be included in this charge an amount to cover the string and wrapping paper to tie the article up with. There should also be included a portion of my time making the sale—rent and a certain percentage of hundreds of other items which I am called upon to pay for in order to be in a position to furnish the customer with this bibb.

First it is necessary to get a clear understanding of just what constitutes Overhead Expense. This done, the problem is more than half solved, as then it is only a matter of keeping track of these items, arriving at the correct percentage to include in the Selling Price.

Including Proper Items

My experience gained from investigating this question of Overhead leads me to believe that a lot of the trouble is caused by business men not including the Proper Items in Overhead. For instance, some Sanitary Engineers have members of their family keeping the books (without remuneration). Others take no regular salary. Others make no allowance for breakage, lost materials, tools, etc. Some keep no books at all and simply guess from day to day.

Here is a list of items that constitute Overhead Expense. It is fairly complete and might be reduced for some small concerns, but it will serve as a guide and possibly call some items to the Sanitary Engineer's attention which he has hitherto overlooked

Now the important thing to bear in mind is that every dollar we take in must bear a percentage of each of the above items. If my volume of business

is \$30,000 for the year and the total expenditure on the above items is \$7,500, then my Overhead Expense is 25% on sales, or in other words, out of every \$1.00 I take in, I must lay aside 25c to cover Overhead and this is not making allowance whatever for profit.

On this page is shown a partial list of expenses as applied to the Plumbing and Heating business, which I would suggest being cut out of this paper and pasted up in some place in your office.

EAST END SEWER IS COSTLY

Hamilton—Some problems involving a very expensive equipment will have to be met in laying sewers in the extreme eastern portion of the city, E. R. Gray, city engineer, stated. The sewage system to be installed east of the Saltfleet line, and especially in the district toward the Beach pumping station would require a pumping station to maintain a flow of the sewage. Owing

to the flat ground and the levels, this expenditure could not be avoided, Mr. Gray said.

PORT CREDIT TO VOTE ON WATERWORKS BY-LAW

Port Credit, Ont.—It is likely that citizens of Port Credit will vote on a bylaw at the next municipal elections to spend \$75,000 on constructing a municipal water system. James, Redfern & Proctor, the town engineers, reported to a special meeting of the council that the cost of building a complete system would be approximately \$75,000. This would include mains, filters, pumps, standpipe and intake.

Port Credit is badly in need of a water system. Some time ago the Provincial Board of Health reported that some 80 per cent. of the wells were contaminated. Last January the electors carried a peticion submitted to them on the water question, but before construction can be commenced the people will have to vote on a money by-law.

List of Overhead Expense

Rent, (shop, store, warehouse, garage, barn, office).
 Light and Heat, (store, warehouse, garage, barn, office).
 Salary (Owner's salary that he could command as manager of a similar business).
 Telephone and Telegrams.
 Car, Truck or Horse and Wagon and Bicycle Upkeep.
 Bookkeeper's Salary.
 Stenographer's Salary.
 Stockkeeper's Salary.
 Office Boy and Delivery Boy.
 Percentage of Foreman's Time Spent Figuring.
 Insurance—Fire, Liability and Workmen's Compensation.
 Taxes—Municipal, Business and Property Tax, Provincial, Federal Income Business Profit Tax.
 Bad and Doubtful Accounts.
 Allowance for Lost, Stolen and Defective Materials.
 Labor Lost Replacing Defective Goods.
 Lost Time in Shop Repairing Tools, Etc.
 Interest on Capital Invested at 6 per cent., and Interest on all loans.
 Allowance on Accounts.
 Advertising (Newspapers, Programs, Signs, Etc.)
 Commissions.
 Repairs for Tools.
 Repairs around Store, Shop or Warehouse.
 Depreciation on Office and Store Furniture.
 Depreciation on Car, Tools and Machinery.
 Trade Papers, Association Dues.
 Stationery—Books, Printing.
 Stamps, Ink, Pencils, Typewriter Ribbons.
 Travelling Expense, Car Fares.
 Collection Fees.
 Legal Fees.
 Donations.
 Window Dressing Materials.
 Licenses (Auto and Business).
 And other items that cannot be charged directly to your customers.

Water Waste from Defective Plumbing

Waste of Water from Defective Plumbing Greatly Exceeds that Used in Sprinkling Lawns or Running to Prevent Pipes from Freezing — Average Leaking Plumbing Fixtures Waste 977 Gallons of Water Daily—Inefficient Water Closets Cause Much Waste

SOME surprising facts have been brought to light in a report by the general manager of the Board of Water Commissioners of a large American city. This report is based upon investigations that have been made by a private corporation that was engaged by the water commissioners to locate and stop the waste of water. Many leaks were located in the water mains, the stopping of which prevented the waste of millions of gallons per day, which had been running into sewers, with no surface indication that water was being wasted.

The work of this company also included making a house to house inspection of meters and plumbing fixtures, to ascertain how many fixtures were leaking and how much water was thereby going to waste.

The average householder who is confronted with a large water bill frequently assumes that the water meter is registering too high. Often, it is believed that sprinkling the lawn consumes a great deal of water or that a great waste is due to allowing the tap to run to prevent the plumbing from freezing. Here, then, are the facts. The daily average of water used in this city for each of these purposes is as follows:

	Gals. per Day
To prevent pipes from freezing . . .	750,000
For sprinkling lawns and the like . . .	900,000
Defective plumbing fixtures	23,000,000

17,597 Leaking Fixtures

The investigation resulted in the discovery of 17,597 leaking plumbing fixtures where the leak was sufficiently great to record on the water meter.

This was in territory totaling 80 per cent. of the population, and it is assumed that 10 per cent. of leaks in this territory remained undiscovered, from various causes. Therefore, in the whole city, it is assumed that there are about 25,000 leaking plumbing fixtures.

Another startling fact is that the average leaking plumbing fixture wastes 977 gallons of water per day. This fact was ascertained by measuring the rate of flow for over 4,000 fixtures. An examination of their inspectors' reports indicates that a leak of 1-10th of cu. ft. of water per minute is common. This equals 144 cu. ft. per day, amounting to 1,008 gallons and, at the lowest meter rate for domestic use, adds at least 5 cents per day to the water bill which means \$4.50 per quarter, or \$18.00 per year. Larger leaks than above described are not at all rare, even in the better residential districts.

We now begin to understand why water boards generally receive so many complaints regarding high water bills. Ratepayers in this city, for example, pay for a waste that approximates 8,000,000,000 gallons per year, an amount of water that weighs 34,000,000 tons.

The Water Department of Battle Creek issues a leaflet to ratepayers, giving the following information:

Leak through opening of	Gals. per day	Gals. per month	Cost per month at meter rates
1/4-inch	12,000	360,000	\$18.00
3/16-inch	8,000	240,000	13.00
1/8-inch	4,000	120,000	8.00
1/16-inch	1,000	30,000	2.40
1/32-inch	400	12,000	1.00

Water Closets Waste Most

The calculations of the Battle Creek water department are quite similar to those of the great majority of water departments. It is a well established fact that it is water closets that waste most of the water. A moment's reflection will serve to confirm this fact. Almost all other fixtures, such as bath tubs, lavatories, sinks, laundry tubs, etc., are equipped with faucets that are in plain sight, and where the drip is visually perceptible, but this is not true of the water closet. Here, a leak may occur without the least splashing of water, and with some types of bowls, it is unseen even if the valve has failed to close. Hence, a leak often attains considerable proportions before it is noticed, or before the noise of running water evidences the fact that repairs are necessary. Authorities consulted agree that of all plumbing, water closets give 90 per cent. of the trouble.

The question naturally arises, why is it that in this age of high efficiency in other lines, inefficient water closets seem to be the rule, rather than the exception. The answer is, that the average householder makes no effort to acquaint himself with the mechanism of water closets. All closet bowls look alike to him, and it is difficult to make him understand why some are more efficient than others. The "workings" of the tank are a deep, dark mystery, and the whole subject is distasteful. He may learn to tinker with his automobile, may know something of the electrical equipment of his residence, be able to subdue a refractory lock, or make the screens fit but, should something go wrong with the water closet, this is usually endured as long as possible and accepted as a necessary evil. Valves are allowed to cut out that might often be saved by the "stitch in time."

And because the householder knows nothing about the relative efficiency of differing types of closets, the kind that he buys with greatest readiness is that sold at the lowest first cost, which is the sort that is known to the trade as the "competition closet." This type is manufactured and sold for the simple reason that it is as cheap as anything the other fellow has to offer. It is first cousin to the dollar watch, the 69-cent razor, and the 15-cent suspenders.

It is hardly possible to give too much attention to the selection of the water closets for even the most modest home, bearing always in mind that the efficiency of the closet depends very largely upon the type of flushing mechanism selected. Otherwise, waste of water, unsanitary conditions and possible ill-health may easily be the result. The Battle Creek water department states that some types of flushing mechanism are not fit for use. On the contrary, other types have proved their efficiency through years of successful use. No closet should be selected because the first cost is low. Neither should another be selected because it has a pleasing exterior appearance, or is beautifully illustrated.

There seems to be no good reason why closets should continue to be selected that cause the water meter to operate continually, day and night, as is now known to be the case. Rather, the water used should be confined to that actually required to flush the bowl thoroughly—no more, and no less.

INCINERATOR FOR CHATHAM

Chatham, Ont.—Under the leadership of the chamber of commerce forum committee, a large and interesting meeting was held in the chamber of commerce rooms to discuss the bylaw which will be presented to the people at the next municipal election, to provide the money for the construction of a civic incinerator.

It was the general opinion of the meeting that this city is badly in need of an incinerator for the disposal of garbage, and the proposition as presented was regarded as a reasonable one, and one which should meet with the hearty endorsement of the ratepayers. The City of Chatham is in a peculiar position. She has been deprived of maintaining garbage dumps within the corporation, and it is upon the advice of Mr. Justice Logie that she is now considering the construction of an up-to-date incinerator.

Small Set Of Books For Plumbers

Proper Bookkeeping in the Plumbing and Heating Shop Commences With Small Set of Books for the Small Operator, Allowing Expansion as Business Grows—Valuable Information Based On Findings of National Trade Extension Bureau

IN INTRODUCING this instalment of the series of articles which have been appearing in Sanitary Engineer, we would refer the reader to the monthly trial balance as illustrated on page 17 of the November 15 issue. Some details concerning these various items will be given herewith.

The headings at the top of the various columns in the Sales and Purchase Journal appear on the Monthly Trial Balance form. There are also other accounts on the Monthly Trial Balance for which separate columns have not been provided on the Journal sheets. These are taken care of through the General Ledger and Miscellaneous Account columns.

All entries to accounts under Assets and Liabilities will be made in the General Ledger columns of the Purchase Journal or Cash Book, as the case may be.

The accounts listed under "Overhead Accounts" on the Monthly Trial Balance correspond to those under the same heading on the Purchase Journal.

Each month, after the totals for the preceding month have been brought forward, carry the grand totals to their respective accounts on the Monthly Trial Balance. In doing this, add to the figures on the Journal sheets the amount appearing in the first two columns. Understand, of course, that totals appearing under "Debit" on the Journal sheets must be entered in the Debit column on the Monthly Trial Balance. Credit amounts on the credit side. For adding in the amounts in the opening entry follow the same rule of adding Debits to Debits, and Credits to Credits.

An Illustration

To illustrate this method, we will take the figures appearing on the samples in the Nov. 1 issues as the totals of their respective columns. Turning to the illustration of the Purchase Journal: the first column is Accounts Payable, and the total of the two items appearing there is \$548.57. We find Accounts Payable Ledger Controlling Account on the Monthly Trial Balance under Liabilities. As the amount \$548.57 on the Purchase Journal appears under Credit it must be placed in the Credit column on the Monthly Trial Balance. When we come to do this we find that in the opening entry \$513.20 appears on the Credit side. Accordingly, we add these together, making \$1061.77, which we put in the Credit column.

The next column on the Purchase Journal is Freight Allowance. This is entered opposite Freight, Express and Drayage under Job and Contract accounts on the Monthly Trial Balance. As it is a Credit Column it must be en-

tered on the Credit side. We accordingly enter \$2.43 on the line of Freight, Express and Drayage in the Credit Column.

Next is the Material column, the total of which is \$426.00. We note first that this column is under Job and Contracts, so we look for the account on the Trial Balance under "Job and Contracts." We next look to see whether the total belongings on the Debit Credit side as shown by the heading at the top of the Purchase Journal. We find it to be Debit, and we note that in the opening entry there is \$1968.72 in the Debit column. We accordingly add our \$426.00 to this, and the total \$2394.72 is entered on the line of Material in the Debit column.

Productive Labor in the next column is treated the same way except that there is no amount to add to it. Had there been any entries in Miscellaneous Job Accounts they would also have been entered on the proper lines.

Office Salaries

The next column we have is Office Salaries. We find by our heading on the Purchase Journal that this is one of the Overhead accounts. We therefore look for it under the same heading on our Monthly Trial Balance, and carry the amount \$70.00 into the Debit column, because the word Debit appears at the top of the column in the Purchase Journal.

Next appears Non-Productive Labor in the Miscellaneous Overhead accounts; the amount is \$11.00, so we enter it in its proper place in the Debit column on the Trial Balance. You will see from this that, where there are several entries in the Miscellaneous Accounts, to different accounts these amounts must be gathered together, and the total charge to each account shown in the Journal.

We next turn to where a sample of the Sales Journal appears. We follow the same method as before. The Customers' Accounts is a Debit column showing the total \$17.30. We find the corresponding account, on the Trial Balance under Assets, and add \$17.30 to the amount appearing opposite under our opening entry. The total, 3,899.32, is extended in the Debit column. The other columns are extended in like manner. In this case they are all Credits and therefore go to the Credit column on the Trial Balance under "Job and Contract" explanation about the Loss and Gain accounts as they appear on the Monthly Trial Balance: there are four of these, as you will note, to correspond with the four divisions of sales arranged for in the larger book-keeping sets. This small set being for a business of small

volume it is not necessary to separate the various classes of sales as extensively as for the larger business. Accordingly we combine the first three Loss and Gain Accounts into one by bracketing them as shown.

Cash Disbursement

We will next take the illustration of the Cash Disbursement sheet. The illustration shows all disbursements being made by check, with a Petty Cash fund being used as described in the August article. Therefore, the figures on the "Cash Disbursements" and "Cash Receipts" forms have to do with "Cash in Bank" account.

Taking our first column \$540.10, which is Credit, we extend it in the Credit Column opposite Cash in Bank on Monthly Trial Balance Sheet. The next column, Discount Earned \$8.47, is also Credit, so we do the same with it.

On the right hand side of these Cash sheets are the Debit columns, so the amounts in these will be extended in the corresponding columns on the Trial Balance. Accounts Payable \$548.57 is put in the Debit column opposite Accounts Payable Ledger Controlling Account.

Turning to illustration of "Cash Receipts" sheet. The two columns to the left are headed Debit, so the amounts must be entered in the Debit column. The amount in the first column \$33.12, which is Cash Received, is added to \$125.90, the amount appearing in the Debit column of the opening entry opposite Cash in Bank and the total \$159.02 is entered in the Debit Column. The next column is Cash Discount, having a total of \$1.63. It is entered opposite that account in the Debit column.

The total in Customers Accounts, \$34.75, is entered in the Credit column of Customers Ledger Controlling Account.

We have now transferred all of our totals and we must next bring forward the remaining totals in our opening entry. They are the following:

	Debit	Credit
Shop Equipment	\$300.00	
Office and Show Room		
Equipment	529.60	
Small Tools	100.00	
Automobile	600.00	
Notes Payable		1,000.00
A. Plumber Net Worth		5,993.04

After extending the above amounts we add up both columns of our Trial Balance, and find that each column totals \$8,657.86. This proves that our work is correct.

While it has taken a good deal of time to read all this, we can assure every reader of this article that doing this

Continued on page 22

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May Be Referred to and Studied

Article No. 43 of Series; Illustrations Nos. 49,50

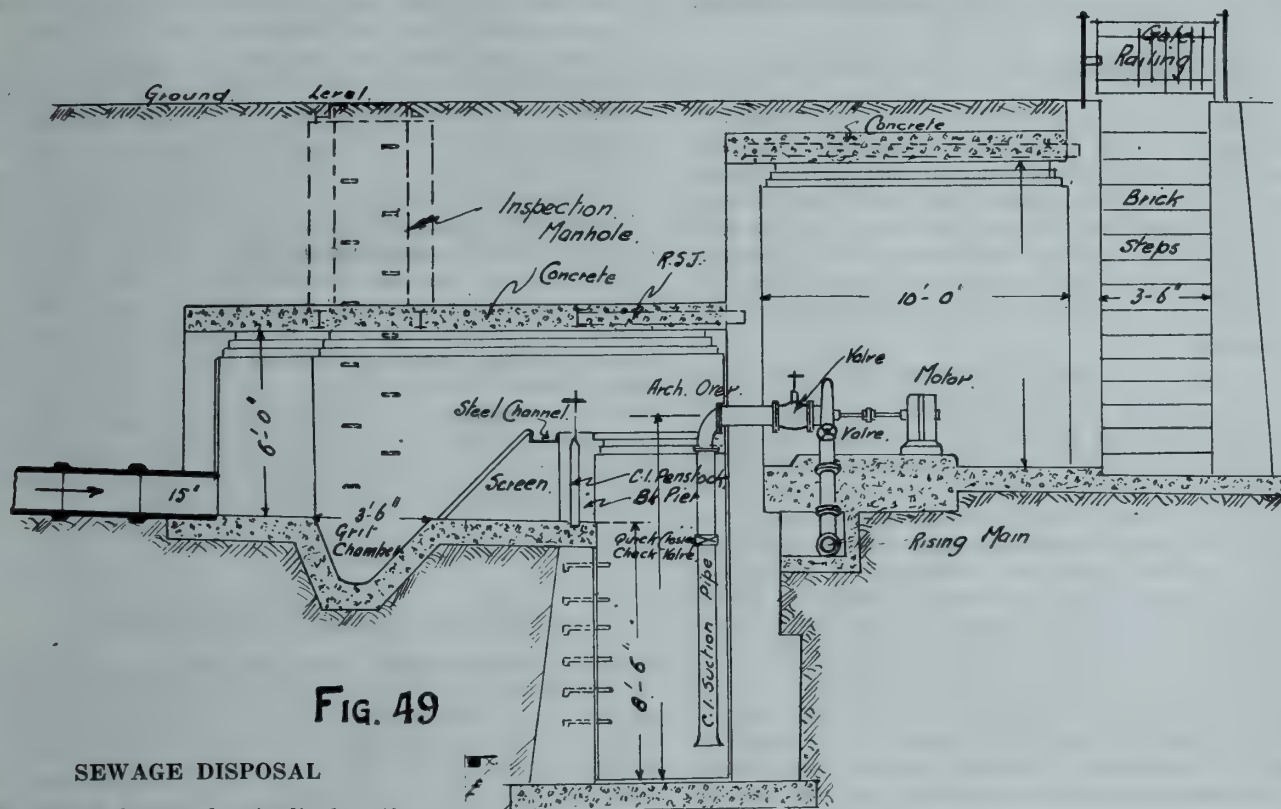


FIG. 49

SEWAGE DISPOSAL

FIG. 49 shows a longitudinal section of the entire pumping plant which fully illustrates the direction of the flow of sewage from the main outlet to the pumps and through the parts into the rising main laid in the concrete channel for easy inspection purposes under the floor.

Fig. 50 shows a cross-section through the pump house illustrating the valves on the delivery pipe from the pump to the rising main and the foundations of the engine beds.

The four walls are constructed of brickwork in cement and rendered with cement mortar. Step irons are built in as shown in the inspection shaft and also down the suction well.

The roof is constructed with Portland cement concrete in the proportions of 1 cement, 2 sand 4 broken stone reinforced with 6" x 4" R. S. Joist and expanded metal, and floors being Portland cement concrete composed of 1 part cement 3 parts sand and 5 broken stone 2½" mesh and finished off to a fine smooth finish facing mixture.

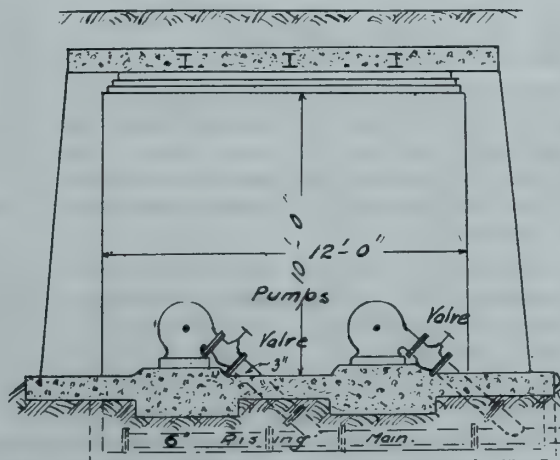


FIG. 50.

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An Opening For Business

CHRISTMAS is but a short time off but the plumbing and heating engineer with a showroom should put plans into execution as soon as possible for securing the interest of local prospects in plumbing and heating equipment and smaller bathroom accessories. With the sale of such lines put upon a merchandising basis by the plumber, it becomes an advantage for him to emulate the example of other merchants and stimulate seasonable interest through a clean and attractive display of his wares.

These are years when gifts of more practical value are in order, and what could be more appreciated as such than a gift of some needed piece of plumbing or heating equipment? Perhaps the old folks would appreciate some articles of equipment for bathroom, kitchen or laundry, to say nothing of the wide range of accessories to be had for these important rooms in the home. Gas water heaters and other heating equipment is equally suitable for such gifts. There is no reason why plumbing and heating engineers can not get a share of Christmas business in such lines. It requires no stretching of the imagination to conceive of the purchase of such lines for Christmas gifts at a time when the necessities of life are popular to be exchanged as presents. The Christmas shopper always labors under difficulties in choosing gifts, hence the letter from the plumber to the right prospect, the window display extending a Christmas atmosphere, and the personal suggestion will do much to develop trade of this nature.

* * * *

Why Does Iron Rust?

SPEAKING on what it pays to know about "Corrosion," G. A. Van Brunt, in a recent issue of "Factory," says that there are three theories of corrosion, the best of which is the "Electrolytic Theory." In explaining this theory he says that it offers a satisfactory explanation for a greater number of observed facts. He continues:

Ferrous salts, especially in solution or freshly precipitated, are rapidly oxidised in the ferric state by atmospheric oxygen; so that all the electrolytic theory must do is account for the solution of the iron in the first place. According to present views the reactions which take place between different substances in the presence of water are accompanied by certain readjustments of the electrical state of the irons. Thus, when metallic iron is put into a solution of copper sulphate, or blue vitriol, the copper is precipitated in metallic form and the iron goes into solution, the ions of this taking the electrical charge of the copper ions. Chemically, hydrogen behaves like a metal and has a lower solution tension than iron; therefore if we

place a strip of iron in a solution containing hydrogen ions, the iron ions will assume an electric charge and the strip will be dissolved, as it was in the copper solution, while the hydrogen will give up its electric charge, changing from the ionic to the atomic condition and escaping as a gas.

It has been shown that iron is slightly soluble in pure water, but if oxygen is not permitted to act on the solution, no sign of corrosion can be seen. When it is admitted, however, the red ferric hydroxide soon settles out. A little reflection will show that before iron can rust it must first go into solution, at the same time that hydroxide is set free, and oxygen must be present to oxidize the ferrous salts formed. An exchange of electricity between the reacting ions is therefore demanded and the case may be considered to be one of electrolysis, as the disappearance of a hydrogen ion, the hydrogen going off as gas, means the appearance of a ferrous ion somewhere else. We may consider, then, that corrosion is due to the iron being attacked by hydrogen ions and taken into solution. Since hydrogen is the characteristic ion of acids and hydroxyl that in cases, we should expect acids to stimulate corrosion and alkali substances to retard it, which is in accord with fact.

Taking a bird's-eye view of corrosion according to the electrolyte theory, we see that it lines up about as follows: When iron and water are in contact a certain amount of the metal goes into solution. Remembering that hydrogen acts like a metal, it is seen that its ions will tend to collect around the negative poles and exchange their electric charges with the iron so that the latter will go into solution and the hydrogen escape as a gas. Ordinarily, however, the concentration of the ions is low and the action proceeds very slowly. Iron goes into solution, nevertheless, as a ferrous salt; the oxygen of the air then acts on the ferrous salts and changes them into the ferric state, in which form they precipitate out as the familiar red rust. And so the process is repeated indefinitely.

* * * *

Disarmament Conference

THE DISARMAMENT CONFERENCE, now proceeding in Washington, to which the representatives of the leading nations of the world have gathered, is the centre of the world's interest at the present time. Great results are expected from the deliberations being conducted, and if, as result of the conference, the world will be liberated from the yoke of terrific annual expenditures for the maintenance of armaments the gathering will have achieved its greatest object. The limitation of armaments among the nations of the world will remove much of the cause of friction which frequently is fanned into flame. With the dogs of war destroyed there will be much less likelihood of war. Another important phase is that the unending drain upon the nations' financial resources for the building and maintenance of such armaments will be stopped and much capital diverted to more productive channels with consequent aid to business in general.

As to the influence of the limitation of armament construction on the metal trades it is evident that preliminary reports have greatly exaggerated the probable effect. Analysis of the situation shows that in the United States the steel requirements of the Navy in the last five years equals about one-half of one per cent. of the finished output of the mills and for 34 years about one-third of one per cent. Judging by the size of the U. S. Navy this situation would probably be very similar in Britain, France, Japan and other leading naval powers. As a matter of fact the suggested limitation of naval construction has made a favorable appeal to steel manufacturers, because the initial effect would not be serious and the ultimate effect of the large release of capital and labor for merchant ship-building and other peaceful purposes, would be to help industry.

Heating and Ventilating

Kingston Central Heating Plant Described

Professors Wilgar and Arkley Give Details of New Scheme at Local Engineering Institute—Many Interesting Features

KINGSTON, Ont.—The new central heating and power plant now under construction on the water front for the General Hospital and Queen's University was described in a very thorough and interesting manner by Prof. W. P. Wilgar and Prof. L. M. Arkley, two of the engineers in charge of the work at a meeting of the Kingston Engineering Institute.

Prof. Wilgar described the construction of the tunnel which will connect the college and hospital with the central plant. He discussed the difficulties which the engineers had met in the form of old sewers and the water, gas and sewage pipes found at the street crossings. The lower end of the tunnel will be below the level of Lake Ontario and must, therefore, be made watertight. This was being done by the use of hydrated lime with cement. He explained that just below Stuart street a portal was being constructed at ground level for putting the pipe in the tunnel. The concrete pedestal on the college tennis grounds has nothing to do with the heating plant, but provides a solid base for instruments used in taking observations of the sun, etc.

Prof. Arkley described the plant itself. He explained the reasons for constructing such a plant. Both at the college and at the hospital the present plants were loaded to capacity and the authorities had either to enlarge the present plants or build new ones. After carefully estimating the cost of extending the plants, it was decided that a new plant would be the best thing.

Advantages of Waterfront Site

Discussing the location, Prof. Arkley showed that the water front was chosen for the following reasons: (1) coal could be obtained directly and therefore cheaply from the barges instead of having to be carted to the college; (2) there was an abundant supply of water available; (3) it would eliminate trouble from chimney gases, and (4) there was no place at Queen's for adequate coal storage. Again, if the present college plant had been extended a high chimney would have been necessary.

The speaker emphasized that the new plant was primarily for heating and the power and current which would be

generated would really be a by-product. It will provide a very efficient heating system, he claimed. Every pound of exhaust steam will be used in heating the buildings and every pound of condensed steam from the radiators will be taken back to the boilers.

Abundant B. H. P.

Speaking of the size of the new plant, Prof. Arkley showed that the present Queen's plant had a 600 boiler horse power capacity, while to accommodate the hospital 200 more horse power was needed. At the new plant 1,600 b.h.p. could be developed, and if necessary 3,000 b.h.p. by operating the boilers overloaded. There would be more power than would be needed for years. Space was also left in the boiler room for another boiler when required.

Prof. Arkley then gave a general description of the plant from the complete set of drawings which have been prepared. The building on King street, which will house the laboratory and power plant, will be 148 feet long and 44 feet wide. The boiler plant south of it will be 80 feet long, 50 feet wide and 60 feet from the water front. The boilers will be equipped with coal stokers for automatically feeding the coal, which will mean a big saving in operating expenses. The boilers will be served by a circular chimney, constructed of reinforced concrete or radial brick to harmonize with the stone buildings of the plant and will be seven feet in diameter at the top and 150 feet high, one of the highest structures in the city.

The heating of the hospital will be by hot water heated in the power plant by exhaust steam from the engines and sent to the hospital buildings in 6-inch mains by turbine driven centrifugal pumps. The university buildings will be heated with steam by a low-pressure vacuum system. A vacuum pump in the power plant with a 4-inch return pipe from Fleming Hall will take care of all condensed steam in all the buildings at the college and convey it back to the boilers. This water will not only be warmer than fresh water from the lakes, but better for the engines, because it will be practically distilled water.

The piping system provided the engineers with several interesting problems. It was estimated that the pipes, when the steam was turned on, would expand $2\frac{1}{4}$ in. for every 100 feet. This expansion will be taken care of by expansion joints every 150 or 200 feet. Another difficulty would arise, it was foreseen, by the condensation of steam in the pipes. This will be overcome by drip pipes connected with traps, where the water will collect. Much heat would also be lost through radiation, but the pipes will be covered with $2\frac{1}{2}$ inches of good pipe coating to prevent this.

WHEN IT DOES NOT PAY TO RISE TOO FAR

It is irksome not to advance rapidly. It tries one's patience. It makes one sometimes feel discouraged. But the events of the last eighteen months have brought home to many that it is dangerous to rise too far, especially in abnormal times. What has happened in a great many concerns is this: During the boom period promotions were made pretty rapidly. Things moved so quickly and money was being made so easily that promotions and salary increases were not always scrutinized with care.

Then disaster came. Boards of directors ordered drastic retrenchment. In many instances outside experts were called in to recommend reorganization of forces. Their investigations revealed that certain men were drawing big salaries for doing comparatively little work and that these men often were not of calibre warranting the salaries received. When heads began to fall, the heads of such men were the first to drop. In a great many cases, their places were taken by assistants or others who had not basked in the favor of any higher-ups and who were doing a lot of work for relatively little money.

If a list could be compiled of the dismissals during the last year of men drawing salaries of from \$10,000 to \$50,000 a year, it would create a tremendous sensation.

During this same period not a few able, industrious, conscientious fellows have moved upwards to fill the places of those who rose too rapidly and too far. The law of compensation may often seem to us to operate heartbreakingly slowly, but it does operate. It is safer to be paid less than one is worth than more than one is worth. That's a thought worth keeping in mind.—Forbes Magazine.

"Tremendous Influence in Re-Establishment of Normal Business"

So Business Papers are Described by Col. Henry Cockshutt, Ontario's Lieutenant-Governor — Leadership Through Business Press Said to Be a Big Help in Building Business Fabric of the Country

ONTARIO'S Lieutenant-Governor, Col. Henry Cockshutt, himself an outstanding success as a business man, paid an understanding tribute to the business papers of Canada when, speaking at a luncheon in connection with the annual meeting of the Canadian National Newspapers and Periodicals Association at the King Edward Hotel, Toronto, on Thursday, Nov. 10, he said:—

"I am especially glad to be with you to-day because I believe that the influence of the business press will be one of the most important factors in re-establishing business conditions in Canada on a safe and sane basis. I make a distinction between the business newspapers and the daily press because I believe that your papers—the business newspapers of Canada—exert a greater influence than the daily press because of the greater confidence your readers have in them. People read the daily newspapers to keep abreast of the general news of the day. They are interested in what is happening around them and they read to satisfy their desire for excitement or interest or entertainment. What they read in the daily newspapers to-day is forgotten to-morrow.

"But this is not the case with the business newspaper. Business men need the service of these papers in the conduct of their everyday business life. I have noted that they usually have a business paper or two in their pocket when they go home Saturday night. I do not say that they read them on Sunday, that I do not know, but I do know they study them carefully, and that a great number of your readers will come to their business on Monday morning with some clipping from your paper in their pockets. They will say to their associates, 'This is the situation, I can show it to you in this clipping.' For that reason, gentlemen, I say that yours is the greater obligation, because you are leaders, because you are helping to build up the business fabric of the country.

"You should be very careful that everything that appears in your columns bears the imprint of the truth. You must be sure that the news you give is correct beyond question, because there are thousands of your readers ready to set their business course by the news and advice you give them. I am familiar with a good many of your publications and I can personally attest to their high character. It is of vital importance that this high character should be

maintained, and that no effort should be spared to give in your columns the maximum of service.

"In these days when there is disorganization, dissension, disruption in all walks—business, politics and religion, there is a great place for the business paper to bring out more complete information, to assist in making us all realize we must work for a common cause, the upbuilding of our country. The business men of this country need your assistance. They are looking to you for information and advice, and are expecting it. On your shoulders therefore perhaps more than on the shoulders of any other single agency, rests the obligation to meet the needs of these trying days, with a sane and sound presentation of the case as it exists at the present time, a presentation free from private bias, or the desire to serve a popular demand.

"You can, and I believe will be one of the largest factors in helping to bring about a satisfactory readjustment of the business conditions of this country."

We publish Lieutenant-Governor Col. Henry Cockshutt's talk verbatim because it reflects what our journal stands for. We are always adding one more link to

our chain of service, and the convention which has just closed was really a gathering of the force to discuss ways and means of improving and adding to our present policy, so that our readers could be offered only authentic and valuable material.

SMALL SET OF BOOKS FOR PLUMBERS

(Continued from page 18)

work is very simple. For practice, take a few jobs from your own records, and make out Workman Orders for them, filling out the Cost Recap section. Then copy these into your sales Journal. Next, make some sample entries on the Purchase Journal and Cash Book sheets, from some of your own transactions. Foot and prove each sheet.

Next copy on your Monthly Trial Balance Sheet, using the first two columns the figures appearing under "Opening Entry" in Figure One. Then add the totals from the Sales and Purchase Journals and Cash Book sheets to the "Opening Entry" figures. To prove your work foot the Debit and Credit columns. If work is correct the Debits and Credits will agree and balance each other.

Galt Exposition Arouses Enthusiasm

Many Plumbing Goods and Other Manufacturers Represented With Booths at Week's Fair Held to Stimulate Interest in Local Products—Canadian Brass and Tank Manufacturers Entertained

WITH THE creditable idea in mind of stimulating local enthusiasm for local products, progressive manufacturers of Galt, Ontario, co-operated in the arrangement of a "Made In Galt Exposition" which was held from November 12-19 inclusive. The plan was successful beyond all expectation and its influence spread over a wide radius in Western Ontario, drawing interested visitors from such cities as Toronto, Hamilton, Brantford, Guelph, London, Montreal and Quebec.

The manufacturers of Galt conceived the idea in order to boost Galt as a manufacturing city as well as to popularize locally made goods. The movement was initiated in large part by Colonel A. J. Oliver, R. McDougall Company, but the exposition was carried on under the direction of C. A. Webster of

Galt. Every day and night while the affair was in progress large crowds were in attendance. It is estimated that the attendance averaged up to 3,200 a night, and great interest was displayed in the seventy-one exhibits arranged by local manufacturers. In some cases three or four booths were occupied by one manufacturer.

Special attractions in the form of music and entertainment were provided and a dance was held each night. The revenue raised from the fifteen cent admission to the exposition and from the dancing, was handed over to local charities. In order to get the affair away to a good start, a street parade was held each evening, headed by a local band.

Wide Publicity

The crowds which visited the exposition (Continued on page 36)

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Galt, Ont.—Brown & Horney, plumbers, have dissolved partnership, Horney continuing.

Simcoe, Ont.—Wm. Preston succeeds J. H. Madden in the plumbing and stove business here.

NEW FIRMS

Peterboro—Nelson & Dunsford have opened a plumbing shop here.

FIRE LOSS

Montreal—J. O. Houle, plumber, suffered fire loss.

OBITUARY

William Armstrong, father of F. Armstrong, managing director of the Port Hope Sanitary Mfg. Co., Toronto, and of W. Armstrong, head of the Armstrong Company, died this week at the age of 86 years. Deceased was for some time in the plumbing business with his son, but retired some years ago.

W. R. STAVERT LEAVES JENKINS BROS.

W. R. Stavert who has for the past twenty-one years been associated with Jenkins Bros., Montreal, for the greater period as sales manager, has severed his connection with this company and has taken over the agency for the Kerr Engine Co., Walkerville, Ont., manufacturers of valves, sprinkler equipment, fire hydrants, etc. Mr. Stavert will represent the latter firm in the district east of Hamilton including the province of Quebec. His headquarters are in Toronto.

WATERWORKS AND SEWERAGE

Bluevale, Ont.—Morris Twp. Council will secure plans and estimates for the tile drainage work and improvements. A. MacEwan Twp. Council Clerk, Bluevale, Ont.

C. A. Jones, Engr., Petrolia, Ont., will prepare plans and estimates for drainage repairs and improvements for Plympton Twp. Council.

Port Frank, Ont.—Estimates are being secured regarding cost of draining large area in vicinity of Port Frank for Lambton County and Bosanquet Twp. Councils. G. A. McCubbin, Engr., Chatham, Ont.

WESTERN ONTARIO NEWS

The erection of a new high school will be considered at Hensall, Ont. shortly, by the council. Alex. Murdoch, town clerk.

Robert Dorsey of Amherstburg, Ont., wants prices on hot air heating, plumbing and electrical work for new \$4,500 bungalow.

J. D. Glazier of London, Ontario, was awarded the plumbing and heating contracts for the new \$5,000 residence for Fred Deeley.

Kelly and Crawley of Mitchell, Ont., have been awarded a contract for drainage work to cost \$22,000 by the London Township.

William Knapp, 885 Adelaide St., London, Ontario, wants prices on heating, plumbing and electrical work for new \$4,000 dwelling.

David Eggett of London, Ont., has announced that he will again be a candidate for the School Board at the coming elections.

W. N. Burn of Tillsonburg, Ont., is preparing plans for a new \$4,000 residence and is interested in prices of heating and plumbing.

A. McDougall, 195 Wortley Road, London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with new \$4,500 residence.

Hyatt Bros., 288 Egerton St., London, Ont., contemplate erecting nine residences to cost \$45,000 and are interested in prices of heating, plumbing and electrical equipment for same.

Plans being prepared at London, Ont., by the Board of Education, for improvements at the Technical school include a system of shower baths, a swimming pool and additional lavatories.

The installation of fifteen new bathrooms and of hot and cold water in the upper rooms at the Belvedere Hotel, London, Ont., is planned and prices are wanted on equipment. W. J. Lashbrook, proprietor.

In connection with changes in the Board of Works department at Hamilton, Ont., Hector Phillips, who has been assistant to City Engineer Harry Brazier at London, Ontario, has been appointed designing engineer.

Engineer E. V. Buchanan, of the Public Utilities, at London, Ont., wants prices immediately on electrical equipment in connection with a new \$50,000 ornamental street lighting system for which he is preparing plans.

The bylaw for an addition to the hospital to cost \$160,000 was carried by the

ratepayers at St. Thomas, Ont., and work will be proceeded with at an early date. The plans call for a low pressure steam heating system, ventilation system, and electrical signal system and electric lighting. E. A. Horton is chairman of the Board of Governors and N. R. Darrach, St. Thomas, architect.

U. S. FIRM SECURES RIGHTS

TO MANUFACTURE CAST IRON

PIPE BY DE LAVAUD PROCESS

The announcement is made that negotiations have been completed between Gordon F. Perry, President National Iron Corporation and the United States Cast Iron Pipe & Foundry Company of Philadelphia, whereby that company obtains the exclusive license in the United States for the manufacture of cast iron pipe by the de Lavaud process.

WORK WELL FORWARD

ON NEW WATER SYSTEM

Richmond Hill, Ont.—By the first of the year Richmond Hill's new water system will be finished. The work is progressing rapidly, but there has been some delay over the matter of installing the pumps.

The system is estimated to cost \$95,000. The water is to be obtained from a creek at the west side of the village. A dam is being built and will be finished in a day or two. From the dam the water will be pumped through filtration beds to a stand pipe, which is already completed.

SOLUTION OF WATER DISPUTE

Islington, Ont.—After a year's debate the dispute over the waterworks system for the Long Branch district is step by step approaching a settlement. At the last meeting of the Etobicoke Township Council Engineer R. O. Wynne-Roberts reported it would cost approximately \$180,000 to instal a system if the water was purchased from New Toronto. He recommended that the offer of New Toronto to furnish the water be accepted, and opposed the earlier plan of installing a complete plant at a cost of \$300,000.

The plans for bringing the water from New Toronto will be sent to the Provincial Board of Health and if the Board of Health approves, the question will then come before the Railway Board. It is before the Railway Board that opposition is expected.

ENERGY

The Key

There was a time when business could be attracted—when the buyer sought the seller—when clever display was a magnet that drew many sales. Money came easily—and was freely spent.

But today business must be sought. Buyers are cautious. Prices in general are on the decline. Buyers must know that the price is right; they must feel that their purchase is essential—now.

Port Hope is willing at all times to assist the plumber in his sales efforts and the prosperity of the entire industry. The success of the business and ability of the plumber are the primary concerns of Port Hope Sanitary.

Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Winnipeg Office:
405 TRIBUNE BLDG.

Business Success

Today is the day of the salesman. Action is the key word to success. Energy commands a high price;—and gets it.

In plumbing, as in other fields, "it is the go-getter that wins out." New methods are being adopted, where real success is being attained—non-essentials are being dropped; overhead expenses are being cut. The big effort is made *outside* to get the business.

to co-operate with the
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BRAZING AND WORKING OUT TAPER JOINTS

Continued from page 15

red it weakens the structure of the metal and makes it brittle. or we may say, sort of burns it.

This is a very bad condition for seams especially in pipes where considerable jar or pounding through pumps, and this and that, is necessary. This is liable to crack the joints where it is brittle, and the only way to overcome that would be to cut out the burnt part and put in a pitch or another section of pipe.

At L in near figure 5, we have a sketch reproduced from our former drawing in the 1st article, showing how a V-shaped trough is used for filling the spelter and borax in place. This pipe is then placed over the forge as in figure 5.

Generally the mechanic has a helper and an apprentice to control the air pressure, since this is necessary, as when the mechanic sees the metal coming to a fusion heat, he has the air reduced to insure a good flow of spelter and still not use the full heat which would burn a hole through the pipe.

Very often in pipes of moderate length, and especially pipes of thinner gauge, the heat will often warp the edge and as in sketch C. To press this back into shape a poker with a hook as at C and B is used by the workman and rubbed along the seam, which readily pushes the edge back in place since the copper is hot and very pliable.

The workman will braze as much of the seam as the forge will take and after each step the pipe is moved forward thus bringing the unbrazed seam over the flame and this is heated by turning on the air until near the fusion point when the mechanic beckons to the helper to close off the air a trifle and this is then brazed. This process is continued throughout the entire length of seam.

When all the drippings of spelter are filed off or ground off on an emery wheel, after which the seam is laid over a stake and hammered smooth so it is not visible that there was a joint made in this position.

Coke For Brazing

We should say that coke is generally used for brazing with a blast pipe as shown in figure 5. In using coke the fire must be started and brought to a red glow, thereby showing that all the smoke and fumes have largely burnt away from the coke.

If this is not done and the coke smoke gets in the seam with dirt, ashes, etc., the workman will experience considerable worry before he makes a joint.

Oil as a fuel is also used in many shops, but this requires very careful regulating so a clean fire is produced. By burning too much oil, an oily smoke is produced and when this dirty grease gets between the seams, there is no brazing.

The same holds good after a sheet of copper has been further edged and you rub your fingers along the edge, causing grease or perspiration to pass from your fingers to the copper; you may be sure

that you will have a very hard time brazing that portion. Hence, where grease or oily substance has passed over the joints to be brazed, this grease must be removed, by either sand paper or other means.

A very common practice for the copper-smith is to reduce some straight pipes to tapers as in figure 6. For this a mould block is used as at D, having many shaped moulds carved in the edges and faces of the cast iron.

The general practice for tapering a straight pipe is to set the block up and hang a torch as figure 7 or any other sort of torch that will produce a good heat on a stand as at E, by placing hooks in the position shown by F in figure 6. When the copper becomes heated, a fibre-headed mallet is used, thereby working the metal into the mould.

At intervals the indentations must be hammered out similar to sketch H, where the pipe is placed over a stake or shaft and rounded out.

At sketch G, we show the general process of how the taper takes shape, where the first round is hammered as at -a- which will draw the pipe in say 1/8

of an inch. The next round is hammered as at in section -b-, and this will cause a slanting from a horizontal line of possibly a quarter inch more or less.

After this, the next section -c- is hammered and the -d-, which will work out for the end in a bell shaped flare.

This bell shaped flare is then worked out on the mould gradually, always keeping the torch so the copper is kept flexible. When the taper is worked out, the pipe is rounded and hammered to harden the metal, but this is done in a way so as not to stretch it.

That is, one of the features to copper-smithing, is to know how to hammer the metal, to stretch it or to draw it or to hold it neutral and in either case hold the metal to its approximate thickness. It is safe to say that there is no copper-smith who can call himself a skilled workman who cannot do this.

Gas torches as in Fig. 7 are a great help to the copper-smith in shaping his metal and also as help outs in brazing peculiar places. There is nothing says that the torch must follow the outlines of our sketch. In fact any torch of any design that will throw a good heat and clean flame is suitable.

Contracts Awarded

Hamilton, Ont.—Scanlon & Moyer, 995 Barton St. E., have general contract for construction of sewer costing \$10,000 on Longwood Rd., from end of present sewer to Paradise Rd. for City.

General contract for construction of sewer at cost of \$5,000 Edgevale Ave., from Longwood Rd. to Paradise Rd. for City is awarded to Scanlon & Moyer, 995 Barton St.

Cap de la Madeleine, Que.—Plumbing and heating contracts for fire station costing \$20,000 for City are awarded to H. Massicote & Frere, Ltd., Cap de la Madeleine.

Dartmouth, N. S.—Contract for erection of addition to school costing \$31,000 for School Bd., are: Plumbing and heating, Richards & O'Hara, Dartmouth.

Plumbing and heating, contracts for church costing \$30,000 for R. C. Congregation are awarded to Young & Dunn, Dartmouth.

Halifax, N. S.—Plumbing contract for pumping station costing \$6,100 for City are awarded to Mitchell & McRae, 29 Grafton St., Halifax.

London, Ont.—London Twp. Council awarded general contract for construction of Flood Drain costing \$22,000 to Kelly & Crawley, Mitchell, Ont.

Mille Roche, Ont.—Kyer & Scott, Mille Roche, have general contract for construction of "Eastman" drain at cost \$10,000 for Cornwall Twp. Council.

Toronto.—General contract for service station costing \$12,000 for Canadian Oil Companies Ltd., 2 Strachan Ave., is placed with A. Weller & Co., 54 Tecum-

seh St. Additional contracts include: plumbing and heating, Geo. R. Baker, 37 Lapping Ave.

Toronto.—F. N. Carr, 87 Sherwood Ave., is building store and apts. costing \$10,000 for A. Beamish, 15 Sherwood Ave. Additional contracts: heating and plumbing, G. Moore, 3125 Yonge St.;

Burnaby, B.C.—General contract for waterworks extensions costing \$29,795 for Municipality of Burnaby, is awarded to Dominion Construction Co., Ltd., 509 Richards St., Vancouver.

Toronto.—T. Ross, 82 Bedford Rd., is building a residence costing \$8,000 for Mrs. S. Cooper, 85 Bloor St. E. Additional contracts are: plumbing and heating, Mr. Ray, 217 Ranleigh Ave.

Toronto.—Heating and plumbing contracts for duplex residence costing \$25,000 for S. J. T. Warrington, 199 Yonge St., are awarded to W. Wray, 215 Ranleigh Ave.

Toronto.—Plumbing and heating contracts for residence costing \$6,000 for F. Dixon, 50 Bowood Ave., are awarded to P. Stollery, Roslin Ave.

Toronto.—McNaughton & McKenzie, 1 Shaw St., have plumbing contract for residence costing \$8,000 for D. R. Stock, 14 Price St.

Toronto.—Additional contracts for residence costing \$12,000 for R. E. McDonagh, 299 Huron St., are: plumbing, J. R. Seager, 288 Jane St.

Windsor, Ont.—Additional contract for warehouse costing \$17,000 for Eaton Clark Co., Windsor is: Plumbing, J. L'Heureux, 43 Wyandotte St. E., Windsor.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE UNSETTLED conditions apparent in the market for soil pipe and fittings attract specific interest in current plumbing and steam-fitting circles. In eastern markets, these supplies again register an easier revision, while discounts in other markets remain unchanged, thus accentuating the wide divergence apparent between quotations given on the two chief distributing centres. Other high quotations on certain copper products offer one of the current features. Increased levels are recorded on copper tubing, rods and sheets; while copper scrap has also attracted some attention, with higher prices resulting.

Other price developments supply changes to lower levels. Through a revision in discounts, quotations are reduced on standard steam valves; while easier quotations appear on agricultural wrenches, knife-handled, and double-head "S" wrenches. Some shading is again noticeable in prices on range boilers, this condition particularly applying to the standard 30-gallon size. Fair activity is reported in enamelled ware, with closet fixtures registering a similar degree of activity. The suggested reduction in freight rates is described as hardly being of sufficient importance to affect price levels, and no immediate reflections are looked for.

MONTREAL MARKETS

MONTREAL, November 30—Price developments of a varying nature are recorded in the markets of plumbing supplies, revisions both upwards and downwards being announced on some important lines. The easier tone in the sheet market has again resulted in lower prices on both black and American galvanized sheets appearing in some quarters. Black is reduced from 20 cents to 35 cents per 100 pounds, while galvanized shows a minor reduction of 10 cents per 100 lbs. Brass steam cocks are lower in price, due to revising the discount to 40 per cent. Soil pipe, with the exception of 4-inch, again features the markets with a further revision downwards. Through the continuance of a better tone in copper on the primary markets, copper sheets are now quoted two cents per pound higher. Ingot metals generally have gained, with advanced quotations on some metals. Scrap prices undergo a general revision, but the market remains very quiet. In tools, lower prices appear on double head "S," knife handled and agricultural wrenches.

There is still the unsettled feeling on different lines of plumbing goods and prices on some lines are very nominal. This would apply especially to range boilers, these still selling at a varying quotation.

NEW LOWER PRICES ON DOUBLE HEAD "S" WRENCHES

Montreal.

A decline is announced in prices of the double head "S" wrenches, and new quotations on the various sizes are as follows:

DOUBLE "S" WRENCHES		Unfinished.	Finished.
3-8 x 7-16 per doz.		\$1 55	3 40
1/2 x 9-16		2 80	4 40
3/4 x 13-16		4 25	8 00
7-8 x 1		6 00	11 00
1 x 1-8		7 50	13 00
1 3-16 x 1 1/4		9 40	17 20

KNIFE HANDLED WRENCHES REDUCED

Montreal.

A reduction is made in knife handled wrenches. Coe's will now sell at less 12 1/2 per cent., W. & B. less 27 1/2 per cent.

AGRICULTURAL WRENCHES NOW 47 1/2 OFF

Montreal.

New lower prices are announced on agricultural wrenches and these are now quoted at less 47 1/2 per cent.

STEAM COCKS ARE REDUCED THROUGH NEW DISCOUNT

Montreal.

Through increasing the discount on standard brass steam cocks from 10 per cent to 40 per cent. quotations on this line of compression goods shows a considerable reduction. Other lines remain unchanged with the buying movement showing a slight slackening with the advancing season. Prevailing quotations are as follows:

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 6	30%
Do., Nos. 1 and 2	30%

Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Jenkins Globe	10/10%
Jenkins gate valves	10%
Emco Globe Valves	20%
Emco Check Valves	20%

SOIL PIPE SHOWS FURTHER REVISION

Montreal.

A further revision is recorded in the 2, 3, 5 and 6 inch soil-pipe, these now being quoted less 47 1/2 per cent. In the last issue of "Sanitary Engineer" a reduction of marked proportions was announced, when the discount was revised to 45 per cent., and the following of a further decline would denote the easier market now prevailing in these products. An outstanding feature in the situation is the unchanged prices in other markets. Although easier in tone, certain Ontario markets have failed to register a price decline, unless the announcement was made within the past few days. That such a variation in quotations should exist between the two chief distribution centres is extraordinary, but local dealers state there is no indication of a change to higher levels, and the tone of this market as well as of other iron and steel products, shows an easier tendency. Following are present discounts:

SOIL PIPE—	
2 and 3 inch	47 1/2%
4 inch	50%
5 and 6 inch	47 1/2%
Fittings—	
2 to 6 inch	50-10%

SCRAP QUOTATIONS ARE REVISED

Montreal.

Revisions, both upwards and downwards, are recorded in the market of waste materials. Outside markets, which

control the local situation, have also shown recent fluctuations but ultimately no change has resulted. Quotations are still very nominal, but an easier tendency has again developed in the market as a whole. With the exception of machinery cost, prices show a varying reduction. The revision of non-ferrous scrap is slight, while malleables are reduced from \$10.50 to \$8. per gross ton, pipe scrap from \$7.40 to \$6. The market is generally in a quiet stage, consumers stating they are out of the market for the present but would be interested at a little later date. This lends encouragement and increased activity is looked for after the turn of the year. Nominal quotations are the following:

SCRAP—	
Automobile tires	0 75
Rubber Shoes	0 03
Yellow brass	0 04½
Red brass	0 08½
Light brass	0 03
Scrap zinc	0 03
Lead, heavy	0 04¼
Lead, tea	0 02½
Light copper	0 07½
Heavy copper	0 10
Wrought iron, R.Rd., No. 1 per gr. ton.	10 50
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	7 50 to 8 00
No. 2 bushing	4 00
Boiler plate	8 00
No. 1 machinery cast	21 50

COPPER SHEETS SHOW PRICE ADVANCE

Montreal.

Copper on the primary markets continues to improve with higher quotations now given. This has reflected in sheets, while rods and tubing are for the present unchanged. Both plain and plain tinned sheets are marked two cents per pound base higher. With the strength continuing in this metal, further changes in prices of the finished products will again follow. Brass goods remain unchanged with following prices being present levels:

BRASS—		Base
Sheets	0 25	
Rods, ½ to 1 inch, round	0 23	
Tubing, seamless	0 32	

COPPER—

Rods, ½ to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier lb.	0 34
Plain tinned, 16 oz. and heavier, lb.	0 39
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34
Above prices are for full sheets or bars. Cuts, 5c. per lb. higher.	

BLACK AND GALVANIZED SHEETS REDUCED IN SOME QUARTERS

Montreal.

The easier tendency in the sheet market is again responsible for slightly lower prices in some quarters. Other jobbing houses are maintaining former levels, and generally quotations are nominal. Black sheets are revised from 20 to 35 cents per 100 lbs. lower, while the American galvanized sheets show a decline of a minor nature, approximating 10 cents per 100 lbs.

There is now the seasonable dullness on both the domestic and outside markets, with little change reported in prim-

ary sources. With a quiet month ahead, the mills will not, in all probability, contemplate any development until after the turn of the year. Certain indications point to brisker trade in the opening months of the year and it is thought that a firmer tone and higher prices will accompany any increased activity. Nominal quotations are as follows:

BLACK SHEETS—

10 gauge	4 00	4 65
12 gauge	4 10	4 75
14 gauge	4 40	4 85
16 gauge	4 50	4 95
18-20 gauge	4 55	5 20
26 gauge	4 60	5 40
22-24 gauge	4 65	5 35
28 gauge	4 75	5 50

GALVANIZED SHEETS—

10½ ounce	6 75	7 75
28 gauge	6 3	7 35
26 gauge	6 05	7 00
22-24 gauge	5 90	6 75
20 gauge	5 75	6 60
18 gauge	5 75	6 50
16 gauge	5 60	6 50
14 gauge	5 45	6 50
12 gauge	30	6 50
10 gauge	5 30	6 50

English Standard—		Queen's Fleur-de-lis—
28 gauge	8 25	7 75
26 gauge	8 00	7 60
24 gauge	7 40	7 10
22 gauge	7 05	6 65
18-20 gauge	6 35	5 20

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.	
18 x 24 x 52s	8 25
18 x 24 x 60s	8 50

BRIGHT TIN PLATES

20 x 28 x 100 lb. bases	17 50
20 x 28 IC, 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00

NO CHANGE IN CORRUGATED SHEETS

Montreal.

No further change has taken place in the situation on corrugated sheets since the reduction in all gauges two weeks ago. The plain galvanized sheets are still on an easier trend, and prices on these are again slightly lower in some quarters. However it is thought a more marked reduction would have to appear before a reflection would be cast on corrugated sheets, and a continued easier trend in the sheet markets is necessary before any further change can be made, especially at this time when business is seasonably dull. Following are list prices and discount:

CORRUGATED SHEETS—		Per 100 sq. ft.
No. 28 gauge		6 50
No. 26 gauge		7 00
No. 24 gauge		9 00
No. 22 gauge		11 00
No. 20 gauge		12 50
No. 18 gauge		16 50

Less 7½%.
Lighter than 24 gauge and wider than 27 inches.
75c a square extra.

FAIR ACTIVITY IN ENAMELLED WARE

Montreal.

There is little or no change to record in the situation on enamelled ware,

prices and discounts remaining unchanged. The discount of 20 and 10 per cent. is now being well maintained, thus causing a settlement in the unsteady condition that prevailed up until a few weeks ago locally. There continues a fair degree of activity in all lines, and distributors look for a fair business well into the winter months to take care of the buildings now under construction. Locally there is now more activity in building operations of the smaller class than in the spring months. Following are the unchanged prices and discounts:

Sinks, roll rim—	
18 x 30	\$23 00
Sinks, flat rim—	1 only 2 only 3 only
16 x 24	\$7 50 \$7 40 \$7 30
18 x 30	8 70 8 60 8 50
20 x 30	9 90 9 80 9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5½ feet	57 10

Lavatories—

17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim, F241 or P4345	12 60
Less 20 and 10 per cent.	

CLOSET QUOTATIONS STEADY

Montreal

Quotations on closet combinations are holding unchanged. Building construction still demands supplies, and this is expected to continue, as a good amount of building is now under way. Following are the unchanged prices:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 50
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	11 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	9 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	8 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

QUOTATIONS STILL VARY ON RANGE BOILERS

Montreal

The 30-gallon range boilers continue to attract attention on the local market. Although there is not the amount of price shading that prevailed in the earlier fall months on this line, prices are still by no means uniform. There was an improvement noted only a few weeks ago, and it was generally thought the standard list would again be maintained. However an unsettled condition is again brought in by some jobbing houses quoting lower prices. One local distributor stated that apparently range boilers were being offered as a "lead" to obtain other business in plumbing supplies, and with this being the case an improvement in the situation would be sometime in arriving. Business is now

quieter and little activity is now expected for the remainder of the year. Following is the standard list of prices:

RANGE BOILERS—		Std.	Ex. Heavy
30 gallon	.....	9 25	11 75
35 gallon	.....	12 00	14 50
40 gallon	.....	14 50	17 00
52 gallon	.....	21 00	26 00
66 gallon	.....	30 00	36 00
82 gallon	.....	37 50	50 00
100 gallon	.....	48 00	58 00

COTTON WASTE PRICES HOLD

Montreal.

Although there is no present indication of higher prices on cotton wastes, dealers state they would not be surprised if a revision was made early in the new year. The strength of the raw cotton market has receded for the present, but it will be remembered that waste prices did not advance at the time when an increase was announced on other cotton goods, and any further strength shown in primary sources will in all probability reflect on wastes. Unchanged quotations are as follows:

COTTON WASTE—Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLCR, 15c; X Empire, 14c; X Press, 13c; 6 X Special, 12c. Colored, Fancy, 14c; Lion, 12½c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 20c; colored cotton, 14c.

Above lines subject to trade discount for quantity.

STILL FAIR DEMAND FOR RADIATORS

Montreal.

Manufacturers and distributors on radiators and boilers state that a satisfactory season has been shown, but the buying movement has now slackened to an extent. There is still a good amount of smaller construction to be supplied but the larger work is now well taken care of. Quotations are unchanged as follows:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.
45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.
For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in., 10 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

SMALLER SALES OF EAVESTROUGH

Montreal.

With the season now well advanced, current sales of eavestrough, conductor pipe, etc. have now fallen off considerably, and little further activity is expected this season. Quotations remain at the reduction announced two weeks

ago when discounts were revised. Following are list prices and discounts:

EAVESTROUGH—

O. G. Square Bead—Per 100 ft.		8 inch	10 inch	12 inch	15 inch	18 inch
\$15 90	\$17 70	\$21 20	\$28 80	\$36 80		

O. G. Round, and Half Round—Per 100 ft.		8 inch	10 inch	12 inch	15 inch	18 inch
\$16 90	\$18 70	\$22 20	\$29 80	\$37 80		

Discount 70 per cent. off list.

CONDUCTOR PIPE—Per 100 ft.

2 inch	3 inch	4 inch	5 inch	6 inch
\$18 40	\$22 30	\$29 60	\$40 00	\$49 00

Discount 70 per cent. off list.

CONDUCTOR ELBOWS—

Plain round or round corrugated.

2 inch, list	.....	5 25
3 inch, list	.....	6 00
4 inch, list	.....	10 50
5 inch, list	.....	24 00
6 inch, list	.....	29 00

Less 60 per cent.

IRON AND STEEL PRICES HOLD

Montreal.

Quotations on the various grades of bar iron and steel are generally maintained, although a quotation of \$2.75 on common bar iron appears from one source. This would indicate the easier tone which still prevails in the steel industry as a whole, assisted no doubt by the usual dull period at this season. No change of importance has developed at primary sources, and little further development is anticipated until after the first of the year at least. Considering the small margin of profit that mills are now working on, any increased activity in the opening months of the year is expected to be accomplished by slightly higher prices. The recent adjustment of freight rates, while appreciable, is considered not of so extensive proportion as to cause any present development in prices. Following are existing quotations:

IRON & STEEL—

Common bar iron, 100 lbs.	.....	2 90
Refined iron	.....	1 40
Iron finished machinery steel	.....	2 95
Mild steel	.....	2 90
Single reeled machinery steel	.....	4 75
Band steel	.....	2 90
Spring steel	.....	4 50
Sleighshoe steel	.....	2 90
Tire steel	.....	3 10
Toe calk steel	.....	3 80
Harrow tooth steel	.....	3 05
Mining teeth steel per lb.	.....	0 22
Black Diamond tool and cast steel	.....	0 22

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

LEAD QUOTATIONS UNCHANGED WITH MARKET FIRM

Montreal

The continued gains of metals on the primary markets hold attention to the situation of the finished products, but up to the present no revision is made in quotations. Tin, Copper and Lead are all advanced on the ingot markets, and it would seem only a question of a short time until this reflected on lead products. Sales are seasonably small, although in the past week dealers state that business has shown a slight improvement. This only considered temporary, as the closing month of the year usually pronounces a quiet period. Following are unchanged prices:

Lead pipe, per 100 lbs.	.....	12 50
Lead waste, per 100 lbs.	.....	13 50
Note—Lead pipe is subject to a discount of 10%.		
Lead traps and bends	.....	10% off

Lead wool, lb.	.....	0 13½
Lead sheets, 2½ lbs.	.....	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	.....	0 10¼
Do., 4 to 8 lbs., sq. ft.	.....	0 09½
Cut sheets ¼ lb. extra and cut sheets to size, ¾ lb. extra.	.....	0 25½
Solder, guaranteed, lb.	.....	0 23½
Do., strictly, lb.	.....	0 20½
Do., commercial, lb.	.....	0 21½
Do., wiping, lb.	.....	0 35
Do., wire, lb.	.....	0 11½
Zinc, sheets, casks	.....	0 12
Do., broken lots	.....

FAIR BUSINESS IN FITTINGS

Montreal.

Current demand for pipe fittings continue of fair proportion, one jobber stating it was surprising the call for the various kinds. Orders are small, but fairly numerous considering the advanced season. No further change in quotations since the reduction in Dart unions two weeks ago.

PIPE FITTINGS—		Per Cent.
Cast iron fittings	.....	25
Bushings, cast	.....	27½
Bushings, malleable	.....	25
Flanges	.....	37½
Plugs	.....	27½
Flange unions	.....	22½
Malleable unions	.....	42½
Dart unions, black	.....	33
Do., galvanized	.....	23
Nipples, ½ to 4" close and short	.....	50
Do., long	.....	60
Do., ½ to 8" close and short	.....	40
Do., long	.....	50
Couplings, 4" and under	.....	30
Do., ½" and larger	.....	10
Pound Goods—		
Class A	.....	0 53 0 65
Class B	.....	0 21½ 0 28½
Class C	.....	0 14 0 21½

INGOT METALS CONTINUE TO GAIN

The market for ingot metals has retained its firm tone, and prices generally are somewhat higher although it is questionable whether the volume of business in some lines is sufficient to warrant prices that are being quoted. It is possible therefore that with the usual dullness prevailing during December there may be a slight reaction.

TIN.—Tin continues to advance in London and at present there is a decided scarcity of Lamb and Flag quality in primary markets. There are of course ample stocks of straights quality but this is not used to any extent here. Local market is firm at 36½ cents.

COPPER.—The New York market continues to advance and London is also somewhat higher. The price of electro now seems at a fairly high price considering the demand is only moderate, but producers seem firm at to-day's figures. Local market is higher at 18 cents for electro, 17¼ cents for casting.

LEAD.—This metal is evidently well controlled and the market is very firm at present, especially in London, where prices are at the highest level in over a year. The American situation is unchanged and the activity appears to be in outside markets. Local price unchanged at 7 cents.

SPELTER.—The American market is dull and there is not likely to be any activity until after the turn of the year. London market is higher, but this has no bearing on prices here at present. Quotations unchanged at 7¼ cents.

TORONTO MARKETS

TORONTO, November 30—Some higher prices on copper and copper products generally, attract specific interest to the current markets on plumbing and steam-fitting supplies. This advance covers such lines as copper sheets, rods and tubing, and is a direct reflection of the firm tone recently prevailing in primary copper circles. Some higher levels are also noted on certain scrap materials, such as rubber, copper, and brass. Other price changes are generally to a lower level. Through revised discount quotations, agricultural wrenches, and also standard steam valves show reduced prices. Some shading of nominal quotations on Canada plates is reported, but is not general.

Unsettled conditions still exist in soil pipe and fittings, with the local discounts being unchanged, thus accentuating the wide divergence between quotations on these products at the two chief eastern distributing centres. Some price shading again appears on range boilers, but the general desire is to maintain the standard list.

AGRICULTURAL WRENCHES HAVE FURTHER REDUCTIONS

Toronto.

A further reduction has been announced in quotations on Agricultural wrenches. The revised level shows a discount of 50 per cent.

STANDARD STEAM COCKS SHOW REVISED DISCOUNT

Toronto.

A revision in the discount on brass standard steam cocks, now shows reduced quotations applying to these products. Other lines of compression goods show no further change, the recent discounts being generally maintained. Business in these commodities is described as gradually getting quieter, the approach of the Christmas season usually witnessing the period where both distributors and merchants desire to take records for the annual inventory period, and little new buying is anticipated until early in the new year. Prevailing quotations follow:

VALVES—

	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoaks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	40
Globe, angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves	20
J. M. T. valves	20
J. M. T. C.	25
J. M. T. gate valves	25
Gate or straightway	16-10
Jenkins globe	10-10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves	20
Emco, check valves	20
Webber gate valves	25
Emco, Globe valves, ¼" to 2"	30
Emco, Globe valves 2¼" to 3"	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
¼" opening No. 3633	43

COPPER SCRAP OFFERINGS ATTRACT INTEREST

Toronto.

While dullness continues to reign in most sections of the scrap markets, the exception is at present in copper and other similar metals. Scrap rubber is also showing more life, this factor being

attributed to the demand from southern markets.

Higher offerings have appeared for copper scrap, and quotations have generally moved up on copper wire, yellow brass, and heavy lead. The iron and steel scrap, continues quiet. Following are the average dealers' nominal quotations for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron	
Gross Tons—	
Heavy melting steel (Hamilton)	9 50 10 00
Borings and turnings	2 50 3 50
Rerolling rails	10 50 11 50
Scrap pipe	6 00 7 00
No. 1 railroad wrought	10 25 11 25
Steel turnings (Hamilton)	5 50 6 00
Agricultural malleable	10 00 11 00
Railroad malleable	11 00 12 00
Net tons—	
No. 1 cast	15 00 16 00
Stove plate	11 00 12 00
Grate bars	10 00 11 00
Standard car wheels	13 50 14 00
Scrap Metals.	
Heavy copper and wire	9 50 10 50
Light copper	7 75 8 25
No. 1 composition	8 25 8 75
No. 1 comp. turnings	6 25 6 75
Light brass	3 25 3 75
Heavy yellow brass	5 25 6 00
Heavy lead	3 75 4 00
Tea lead	2 00 2 50
Scrap zinc	3 50 4 00
Scrap Rubber.	
Boots and shoes	2 50 3 00
Lumbermen's rubber bts	1 50 2 00
Auto tires	0 50 1 00
Solid tires	0 75 1 25

UNSETTLED CONDITIONS IN SOIL PIPE AND FITTINGS

Toronto.

In spite of prominent reductions which have appeared on both soil pipe and fittings in the eastern markets recently, local quotations on these products continued to remain unchanged. In discussing this situation with one of the largest Toronto distributors, Sanitary Engineer elicited the information that the recent market condition in Montreal was not entirely based upon healthy trade factors. In this opinion, it was due to the fact that one manufacturer in that city had a fairly large quantity of soil pipe on hand, and was in the habit of quoting direct to the trade. To meet this competition, it was suggested that other manufacturers and distributors had imported an inferior grade of soil pipe, and thus recent discounts developed.

It was further pointed out that local manufacturers could not maintain present quality on their products, and contemplate lower prices, without entailing losses. Whether this covers the entire situation or not, it is understood that business in soil pipe and fittings throughout certain sections of Ontario has been going to the representatives of Montreal houses quoting the latest reductions. Another dealer expressed the opinion that it was hard to see how prevailing local prices could be maintained for long in the face of the present Montreal competition. Any likelihood of further change in the Toronto quotations, therefore, is primarily based upon the looked for action by local manufacturers and distributors who are expected to reach a decision in the near future.

SOIL PIPE—

2 inch	25 per cent.
3 inch	30 per cent.
4 inch	30 per cent.
5 and 6 inch	30 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	40-10 per cent
8 inch	net

HIGHER PRICES ON COPPER PRODUCTS MATERIALIZE

Toronto.

In conjunction with the strength recently apparent in primary copper circles and the increased price levels on this metal,—both in the ingot and other stages of manufacture also,—the quotations on copper sheets now register the expected advance. These copper products such as rods, tubing and sheets, are generally two cents per lb. higher than formerly, while the price levels on similar brass products remain unchanged. This situation indicates that the copper markets are recovering from the recent depression, stated one manufacturer, but according to this opinion, in the case of brass there remained fairly large quantities of scrap material still to be absorbed. The new prices are as follows:

BRASS—

Sheets base, per lb.	\$ 0 22
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 25

COPPER —

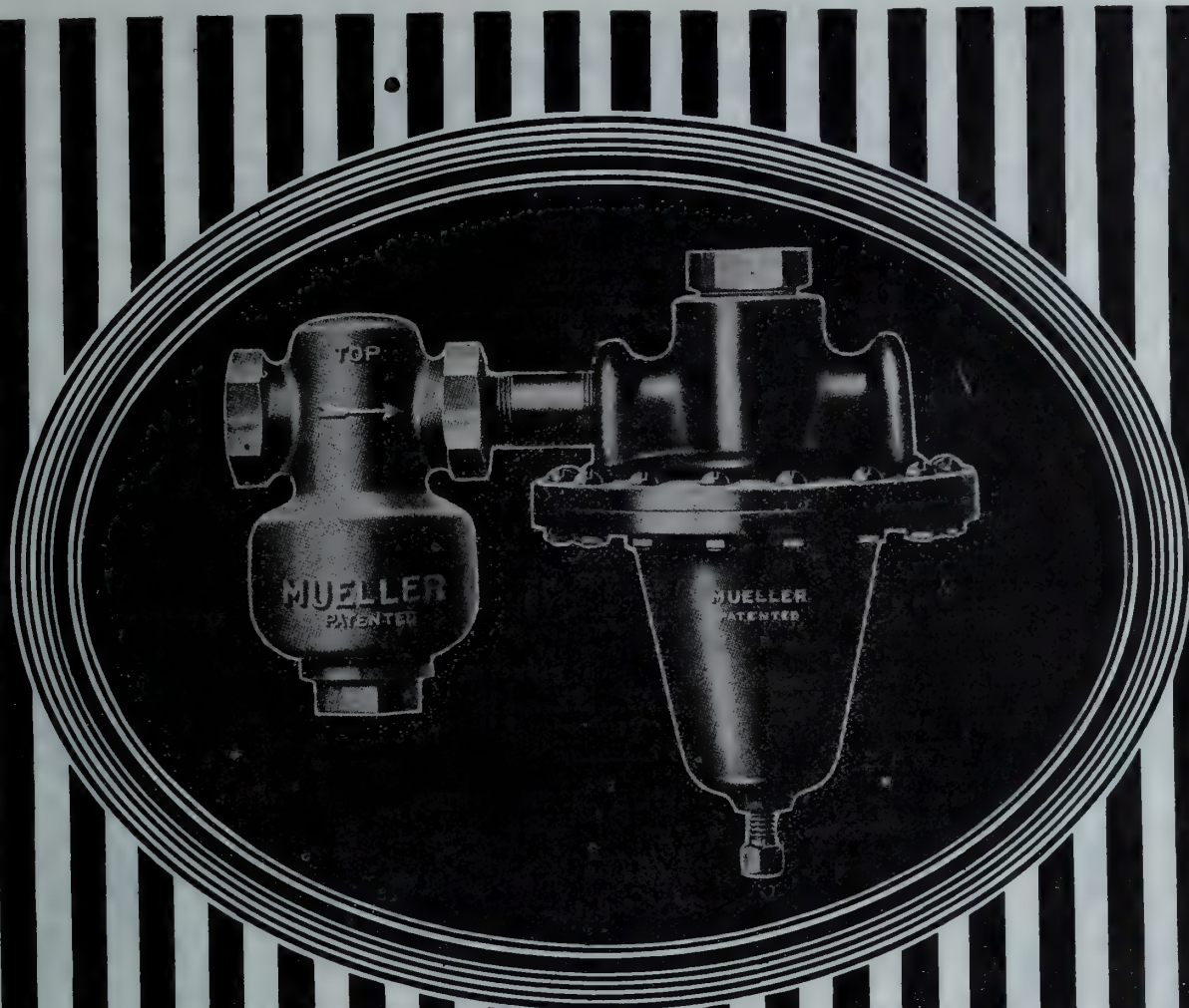
Rods, base, per lb.	0 23
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 42

PRICE SHADING APPEARS ON RANGE BOILERS

Toronto.

To state that the nominal price list on range boilers is apparently again in danger, would indicate that some distributors of these products are quoting prices on the 30-gallon standard size boiler at a lower level than those recently established. Quotations of \$8.50, and \$8.75, on this size, are reported to have made their appearance in certain quarters, and when this is compared with the nominal price of \$9.25, the disturbing elements which developed in the range boiler markets some weeks

(Continued on page 32)



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Water, Plumbing and Gas Brass Goods and Tools.

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Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 30)

ago, are again revived. The majority of the local distributors, however, are maintaining the nominal list, which is as follows:

RANGE BOILERS—	Standard	Ex. Heavy
30 gallon	\$ 9 25	\$11 75
35 gallon	12 00	14 50
40 gallon	14 50	17 00
52 gallon	21 00	26 00
66 gallon	30 00	36 00
82 gallon	37 50	50 00
100 gallon	48 00	58 00
120 gallon	57 00	67 00
144 gallon .....	.....	76 00

SHADING OF NOMINAL PRICES ON CANADA PLATES

Toronto.

Some lower prices have recently appeared on the local markets on Canada plates. This situation is attributed to certain endeavours on the part of some dealers to reduce stocks on hand. A quotation of \$5.35 for Canada plates was recorded in one quarter, while the nominal level on the ordinary 52's is \$5.60. It is stated, however, that such price shading was not general, although no surprise was expressed where stocks may be heavy; and where an attractive inquiry offered a special inducement to lower levels: Following are the nominal prices on these products still prevailing:

PLATES, CANADA—	Per box
Dull, 60 sheets	5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
1C, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 112 sheets	19 00
IX, 20 x 28, 56 sheets	12 00
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	14 00
IX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
1C, 14 x 20, 112 sheets	12 00

FIRM TONE MAINTAINED IN LEAD AND ZINC PRODUCTS

Toronto.

Metals entering into the manufacture of lead and zinc goods show recent gains on the ingot markets, and the opinion has been expressed that if this strength is maintained, such a situation is expected to be reflected sooner or later in the prices on finished products. The prevailing market is described as firm, with quotations at present unchanged from the following levels:

LEAD AND ZINC GOODS—

Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb 0 09½	
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 29
Do., commercial, lb.	0 20
Do., strictly, lb.	0 22
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 20
Zinc sheets, per lb.	0 13

FAIR TRADE RECORDED IN PIPE FITTINGS

Toronto.

Developments in the market for pipe fittings indicate that trade is slackening

in these products, and a quieter period is anticipated during the next few weeks. Some revival is looked for as regards volume of orders with the turn of the year. The present trade, however, is described as fair, and good for this season. Discounts are holding at recent revisions. Following is the current list:

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 3 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	33½
Do., ½ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ½ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

	Black	Galvanized
Class A	0 55	0 68
Class B	0 23	0 33
Class C	0 15	0 23

SOME MARKETS HAVE EASIER PRICES ON SHEETS

Toronto.

While some slightly lower quotations on black and galvanized sheets are reported to have appeared in certain quarters, this movement has by no means become general. Other distributors state that they are meeting any such lower levels where it might appear, but do not report any prevalence in this connection. No change has been made in the nominal list quotations. Other dealers reported that lower prices, especially on the galvanized sheets, constituted a new and unexpected factor on the current markets, and was a development worth watching. Current quotations follow:

BLUE ANNEALED—

10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—

18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 10
26 gauge	4 65	5 15
28 gauge	4 75	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—

	Queen's	Fleur-de-lis.
28 gauge	9 25	8 75
26 gauge	9 00	8 50
24 gauge	8 40	8 10
22 gauge	8 05	7 65
18 and 20 gauge	7 35	7 50

Premier and Apollo—

10¾ oz.	6 50	7 00
U. S. 28, base	6 10	6 60
U. S. 26	5 80	6 30
22 and 24	5 65	6 15
18 and 20	5 50	6 00
16	5 35	5 85
12 and 14	5 20	5 70

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

ONLY MODERATE SALE FOR CONDUCTOR PIPE

Toronto.

Current sales for eavestrough, conductor pipe and elbows are naturally becoming less prominent as regards volume, owing to the advanced season. The recent discounts are remaining in effect as follows:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:

	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 70 per cent.	

PIPE (CONDUCTOR)—

Plain, round or corrugated. Per 100 ft. in 10 ft. lengths.

2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00
Less 70 per cent.	

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

FAIR DEMAND REPORTED FOR CLOSET FIXTURES

Toronto.

A fair degree of trade activity is reported for closet combinations and fixtures. Fall construction work still demands a fair volume of supplies, and with interior work being carried on among many buildings recently erected, current requirements for these products are stated to be fairly steady. Quotations are therefore, unchanged, with the list prices remaining in effect as follows:

CLOSET COMBINATIONS, low down each

Closet, standard outfit, oak	28 00
Do., with post hinge seat	28 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 00
Do., vitreous china, with oak post hinge seat and cover	31 55
Do., vitreous china, with mahogany post hinge seat and cover	31 75
Do., white, Vitro or Pussyfoot, with oak post hinge seat and cover	31 55
Do., white vitre or pussyfoot, with mahogany post hinge seat and cover	31 75
Do., enamelled iron tank with oak post hinge seat and cover	31 55
Do., enamelled iron tank with mahogany post hinge seat and cover	31 75

Additions or reductions to above

Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ¾ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS, low down

Oak, Vitro or pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	20 25

CLOSET SEATS—

Oak wood strip seat and cover	3 70
Oak post hinge seat and cover	4 75
Mahogany finish post hinge seat and cover	5 00

(Continued on page 34)

M
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IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark
mean fittings made with
iron of high tensile strength
— proper proportions and
correct tappings.

RECESSED DRAINAGE FITTINGS

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of our brand mean fittings
made of *Air Furnace Re-
fined Iron*, reamed and tap-
ped to gauge with perfect
threads.

A trial of our pipe fittings will prove the quality of service they give.

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Montreal and Toronto—From Head Office Guelph, Ont.

TORONTO MARKETS

(Continued from page 32)

ACTIVITY IN ENAMELLED WARE PRODUCTS

Toronto.

The current situation in enamelled ware is reported to be fairly satisfactory. Activity in these products is dependent upon the interior fitting of seasonal building operations. As a consequence, dealers are looking for trade to continue in varying proportion while this demand is evident. Quotations are unchanged, with the following prices and discounts being maintained:

ENAMELLED WARE—		
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51	40
Do., 5½ ft.	57	10
All Steel Enamel Baths, 4, 4½ or 5 ft., net	\$16	25
Do., do., 5½ ft., net.	17	50
Lavatories—		
17x10" Apron F139 or P4045	15	30
18x24" Apron F154 or P3845 or P3847..	23	60
18x21" Apron F169 or P4205	17	60
18 x 21" Roll Rim, F197, F199 or P4655-6	15	40
17 x 19" Roll Rim, F241 or P4345 ..	12	60
Sinks, Roll Rim, 16x24 in.	18	10
Do., 18 x 30 in.	23	00
Do., 20 x 30 in.	24	70
Sinks, Flat Rim—	1 only	2 only 3 only
16 x 24	\$7 60	\$7 70 \$7 80
18 x 30	8 50	8 60 8 70
20 x 30	9 70	9 80 9 90
All above list except lines marked net.		

BUSINESS IN CORRUGATED BECOMING QUIET

Toronto.

No further changes have been announced in the corrugated sheet market since the revision to lower price levels recently effective. The primary sheet markets continue to register easier tones, but whether further recession will develop in the future is considered contingent upon the current demand. Business in corrugated is naturally entering upon the quiet season, as the prevailing weather conditions mitigate against outdoor activities at this season of the year. Current quotations follow:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	\$6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 7½%.	
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.	

STRENGTH SUBSIDES IN COTTON MARKETS

Toronto.

Although the firm tone in the raw cotton circles has now subsided, the material situation as regards cotton waste prices has registered no change. The strength in the cotton markets merely served to maintain current levels on waste, and prevented further recessions at that time. Owing to the fact that waste prices were not advanced in keeping with the higher quotations on manufactured cotton goods, the easier market tone in primary cotton circles is therefore not directly reflected on waste. Unchanged quotations follow:

COTTON WASTES—		
Cream, polishing	0 19½	0 20
White, cotton.		
XXX	0 18½	
XX	0 16½	

X	0 15½
XC	0 14½
XXX extra	0 1.
XX grad.	0 16
XLCR	0 15
X empire	0 14
X press.	0 13
Colored, cotton.	
Fancy	0 11
Lion	0 12½
Standard	0 11
Popular	0 10
Keen	0 09

SEASONAL SLACKENING IN DEMAND FOR RADIATORS

Toronto.

Dealers report there is still a fair proportion of demand for radiators and boilers, the movement in these products being described as satisfactory for this season of the year. The buying of radiators has naturally slackened considerably from the brisk activity reported a few weeks ago, but some late building is given as the reason for the present degree of trade. Quotations remain unchanged, as follows:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent. for water and 54 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent. for water and 49 per cent. for steam.

Discounts on 1-column hospital size, water 30 per cent.; steam 31 per cent.

Wall radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water:

Round, 60 per cent. off list. Square 10 per cent. off list.

Steam:

Round, 15 per cent. off list; square, 5 per cent. off list.

COPPER ONLY ACTIVE METAL ON INGOT MARKETS

Toronto.

Little general change has been recorded in the ingot metal markets, copper being the only metal to register

signs of activity. On the primary markets, copper quotations have slightly advanced again, but domestic prices are generally unchanged.

COPPER—The primary copper markets continue to show signs of strength, and southern producers have been quick to again advance prices. The outside markets can hardly be described as active, but anticipations evidently exist for export business. The domestic markets maintain a waiting attitude, and prices are holding steady at 17 cents.

TIN—While the undertone in the tin markets is said to be firm, there continues to develop fluctuations on primary markets. The changes in Sterling rates have been directly affecting London advices, and other centres record a sympathetic tendency. The local quotation on tin is also marking time at 35 cents.

LEAD—The lead market is slightly easier in some quarters, but domestic prices are holding unchanged. The undertone locally is said to be fairly firm, but the primary circles have failed to register any developments of note. Local prices of \$6.50 still prevail.

SPELTER—Trading in this metal is not quite so active in general, as was the case earlier in the month. Large producing interests in the south, however, are maintaining an attitude of indifference and refusing to entertain any lower quotation. The easier tone in the primary markets is ascribed to a falling off in demand, but some quarters indicate that this condition may only be of a temporary nature. Local quotations remain unchanged at \$7.00.

ANTIMONY—This market has developed signs of a slightly easier nature, but generally is reported dull and unchanged. Prices are remaining steady, at present, both on foreign and domestic markets. The local prices are from 8 to 10 cents, as usual.

ALUMINUM—This metal has been in little demand, and there is no evidence of any revival of activity in the market. Prices continue to remain at 28 cents.

WINNIPEG MARKETS

WINNIPEG, November 30—Some important price reductions are recorded in the current markets on plumbing and steam-fitting supplies. These changes cover candle wick packing, which has registered a slight recession; some easier quotations on bar iron and steel; another price decline on corrugated sheets; and now lower quotations on conductor pipe and eavestrough.

Other primary markets are maintaining previous price levels; wrought iron pipe, fittings and compression goods, registering very few developments. Only small orders are now apparent for range boilers.

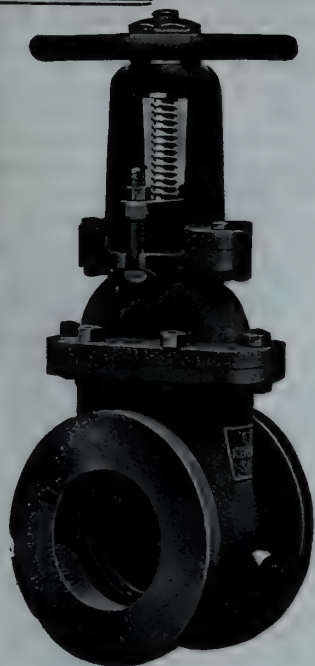
EASIER QUOTATIONS ON BAR IRON AND STEEL

Winnipeg.

Prices have recently dropped on bar iron and steel. It was thought for some time that the next change would bring about firmer prices, but on account of very slight movement in primary circles prices were brought down: also dealers stocks are in fair shape. Following are the present prices:

3-16, 1-4 & 5-16	\$ 4 90	Base
Rounds and Squares 3-8 to 2 and Flats up to & including 1x4.....	4 90	"
Rounds and Squares over 2 up to & including 2½ to 6.....	6 15	"
Rounds over 2½ to 6	6 15	"
Band Steel	5 20	"
STEEL—		
Soft or Mild Rounds and Squares 3-16 1-4 and 5-16.....	5 20	"
Rounds and Squares 3-8 to 2 and Flats up to & including 1x4.....	5 20	"
Rounds and Squares over 2 up to and including 3 and Flats over 1x4 up to 6 wide	5 65	"
Rounds over 3 to 6.....	6 15	"

(Continued on page 36)



Kerr Valves

Give
Character
to Work



They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers

- Walkerville, Canada



"Toledo" Geared Adjustable Threading Tool,
No. 2 1-2. Capacity 2 to 6 1-2 in. inclusive.
Weight 120 lbs.

JARDINE-TOLEDO

Pipe Threading Tools

Jardine. In these effective tools the dies open out as the tool advances on the thread so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter-mouth.

Toledo. Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble. They work easily, smoothly, rapidly and accurately. A. B. Jardine and Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

A. B. Jardine & Co., Limited, Hespeler, Ontario

Agents:

Winnipeg and West, Stanley
Brock, Ltd., Winnipeg, Man.,
Calgary, Alta., Vancouver, B.C.

Brockville and East, J. R. Devereaux,
New Birks Bldg., Montreal
Belleville and West, W. H. Cunningham & Hill, Ltd.,
269 West Richmond St., Toronto

FREE!

This Coupon Entitles Sender to Interesting Free Catalogs.

Name

Address

Sanitary Engineer

WINNIPEG MARKETS

(Continued from page 34)

SLIGHT PRICE RECESSION IN
CANDLE WICK PACKING

Winnipeg.

Prices on candle wick packing having seemingly reached their higher level, are now receding a trifle. The price has been quoted lower this week, and is 55c. per lb.

MINOR ORDERS PREVALENT FOR
RANGE BOILERS

Winnipeg.

Range boiler prices are being fairly well maintained on the local markets, and few developments have been recorded. The same general conditions prevail, as have been in evidence for several weeks past. The proportion of current sales is made up principally of small orders only. Quotations are as follows:

RANGE BOILERS

30 gal.	10 00	each
35 gal.	13 25	"
40 gal.	16 25	"
52 gal.	23 45	"
66 gal.	33 15	"
82 gal.	40 60	"
100 gal.	62 50	"
120 gal.	75 00	"

ANOTHER PRICE DECLINE ON
CORRUGATED SHEETS

Winnipeg.

Prices on corrugated sheets have again been reduced. This decline is attributed to the recent easier tone on galvanized sheets and plates on the primary centers. On account of the early winter, the weather conditions do not permit of outdoor building, etc., consequently the sales of corrugated sheets have fallen off. However, this condition is generally expected at this time of the year. The new prices are as follows:

CORRUGATED IRON

GALVANIZED—

28 Ga.	\$6.75	per 100 sq. ft.
26 Ga.	7.43	per 100 sq. ft.
PAINTED—		
28 Ga.	\$5.63	per 100 sq. ft.
26 Ga.	6.30	per 100 sq. ft.

FIRM UNDERTONE IN LEAD
MARKETS

Winnipeg.

Conditions in the lead and zinc markets remain unchanged, and are holding their own. Prices have been firm for some time; stocks are depleted and prices are considered to be down to rock bottom. Following are the prevailing quotations:

LEAD AND ZINC GOODS

Lead Pipe	\$12 06	per 100 lbs.
Lead Waste	12.96	per 100 lbs.
Lead Traps and Bends	5% off list.	
Lead Sheets, full rolls	10 1/4	per lb.
Do., less	11c	per lb.
Sheet Zinc	13c.	per lb.

LOWER PRICES ON CONDUCTOR
PIPE AND EAVESTROUGH

Winnipeg.

Another decline has been announced on conductor pipe and eavestrough. The

early winter season and the slackening in outdoor building has had a tendency to bring about lower prices on these lines. Following are the revised prices:

Eavestrough, per 10 ft., 8 in.,	\$5.48; 10 in.,	\$6.08; 12 in.,	\$7.29; 15 in.,	\$10.13
Conductor Pipe, 2 in., per 100 ft.,	\$6.69; 3 in.,	\$7.70; 4 in.,	\$9.72; 5 in.,	\$13.77.

PRICES ON COTTON WASTE
HOLDING UNCHANGED

Winnipeg.

The general opinion now is that the cotton markets have receded to some extent, and the brisk activity in these circles has also spent itself. The stronger feeling in cotton waste markets is no longer evident, and there is no indication at present, of any development towards recovery. The demand for cotton and the resultant higher quotations on manufactured cotton goods generally, merely had an effect of making future declines in cotton waste prices more uncertain than might otherwise have been the case.

Prices are therefore unchanged and are as follows:

WASTE—

Cream, polishing	0 24 1/2
WHITE	
XXX Extra	0 21
XX Grand	0 20
XLGR	0 19
X Empire	0 17 1/2
X Press	0 16
COLORED	
Fancy	0 17 1/2
Lion	0 16
Standard	0 14 1/2
Popular J	0 13
Keen	0 11 1/2

Above lines subject to trade discount for quantity

GALT EXPOSITION

(Continued from page 22)

tion from various parts of Western Ontario came largely as a result of the wide publicity given the affair. Mention of the dates of the affair and reproductions of the city's coat of arms were spread broadcast on letterheads used by Galt manufacturers, and distributed in

hotel rotundas, on street cars and trains.

Word of the success of the affair spread so rapidly in Western Ontario that it is said there were representatives of Chambers of Commerce of nearby cities in attendance to obtain pointers for guidance in planning such exhibitions. A feature was the naming of the various days of the fair as an added incentive for record attendances.

Local officials of the "Made in Galt Exposition" were as follows:— Colonel A. J. Oliver, R. McDougall Co., President; T. H. Watson, Canadian Machinery Corp., Vice-President; Beverly Neill, Canadian Machinery Corp., Secretary; George A. Dobbie, Stauffer Dobbie, Ltd., and Newlands, Ltd., Treasurer. The Executive Committee consisted of the following: H. C. McLaughlin, McCaskey Systems, Ltd.; R. W. Roelofson, Galt Machine Screw Co.; Chas. Turnbull, C. Turnbull, Ltd.; W. S. Fallon, Getty and Scott, Ltd.; Geo. Fisher, Canadian Brass, Ltd.; G. P. Stuart, Sheldons, Ltd.; G. E. Gardiner, P. W. Gardiner Co.; A. R. Goldie, Goldie McCulloch Co., Ltd.

A feature of the week was the entertainment of the Canadian Brass Manufacturers Ass'n. and the Canadian Tank Manufacturers Ass'n., being the guests of the Canadian Brass Company of Galt.

NEW LINE OF TAPS

The Gill Brass Co., of Galt, Ont., are putting a line of heavily nickel plated brass taps on the market to the plumbing trade very shortly. The taps will comprise only three parts.

A tube is laid from the containing chamber into the main flow of the faucet, and the water passing over the end of the tube in the mouth of the faucet creates a syphonic action in the containing chamber drawing off all water due to pressure that leaks up around the vertical plunger.

The vertical motion plunger eliminates most of the wear in the seat washer, according to the claims of the manufacturer, and is opened by low water pressure and is receded by a combination tap and handle.

This line of tap is being manufactured for the Gill Brass Co. by the Elliott and Whitehall Tool Co.

Importing Brass Munitions as Scrap

Concerning the article which appeared in November 15 issue, of Sanitary Engineer, pointing out that Canadian imports were handicapped when compared with importers of other countries in that they were not enabled to import brass cartridge cases, fuses, etc., as "scrap" brass, R. R. Farrow, Commissioner of Customs and Excise, Ottawa, Ont., has answered enquiries on this subject by Sanitary Engineer, as follows:

"Item 348 (b) of the Customs Tariff provides for the entry free of duty of brass scrap and importations which are brass scrap in condition as imported are so admitted by this department. Whilst brass cartridge cases, fuses and other munition parts which have been crushed or otherwise rendered into condition of scrap would be admissible free of duty under the above mentioned tariff item, this department cannot admit to entry thereunder as being scrap, brass cartridge cases or other articles of brass which are not crushed or otherwise rendered into condition of scrap, simply on the ground that they are surplus materials and have been sold by The British Munitions Board or other foreign Munitions Boards at greatly reduced prices or at prices equivalent to those of scrap."

TRADE MARK
C & H
REGISTERED



**"C & H" Knife-Blade
Cutter Wheels**

Steel is scientifically tempered so that the thin blade will not break but give lasting service. Wheels for all make cutters in stock.



"C & H" Cone Top Tank Bulbs

Always hold their shape; note special reinforced top, strong spud. The rubber is highest quality. Sizes 2½ in., 2¾ in., and 3 in.

TRADE MARK
C & H
REGISTERED



No. 4 Automatic

We are Canadian agents for the famous "B. & C." line of air vents and floor and ceiling plates. Complete stock on hand.

W. H. Cunningham & Hill Limited

Sanitary and Heating Specialties.

269 West Richmond St.

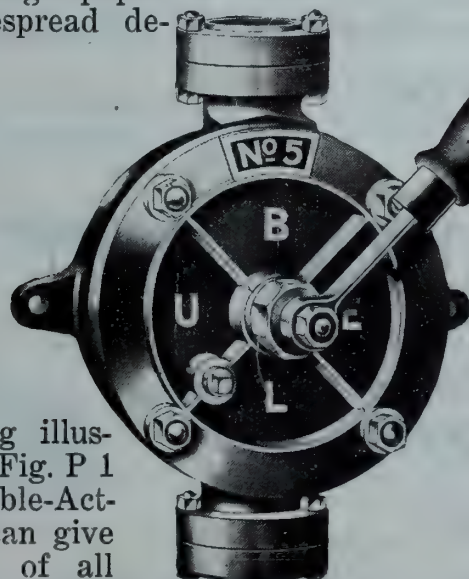
Toronto

TRADE MARK
C & H
REGISTERED

TRADE MARK
C & H
REGISTERED

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



Write For Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS
HEAD OFFICE
EMPRESS
FOUNDRY

UBEL

3,000 WORKERS
CORNBROOK
MANCHESTER
ENGLAND

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½" to 3" inclusive.

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Hill Limited

269 West Richmond Street,

Toronto.

Ever Hunt Deer?

Probably you found them by their fixed habit of returning to the same place for water at every dawn and dusk, day after day. That's a pretty natural way of finding deer, by going where deer are sure to be.

Twice a month, practically everybody in Canada that is interested in the plumbing and heating trade, goes to Sanitary Engineer in search of the business items, markets and advertising where they find the latest news and newest goods offered in the Can-adian plumbing market.

There, twice a month, you can find and reach practically the whole plumbing and heating trade of Canada. It's a good time and place to tell them about your house and product. A full page weekly costs slightly over half a cent for each subscriber reached!

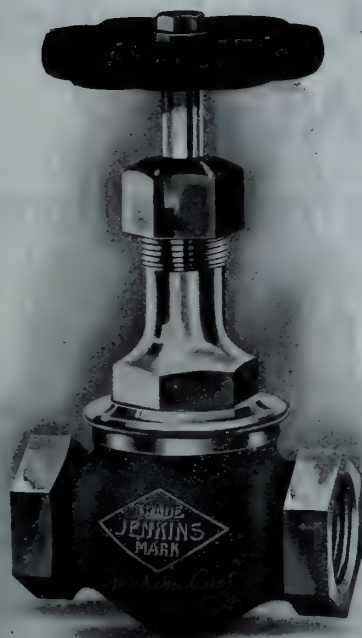
There is no obligation, no expense attached, in sending for a representative. He will explain this service and point out its advantages to you.

Sanitary Engineer

Plumber and Steamfitter of Canada

143-153 University Avenue,
TORONTO, Canada.

A VALVE for EVERY SERVICE



JENKINS VALVES

For Every Requirement of Plumbing,
Heating and Power Plant Service

In every type and in every size—designed, built and tested to stand the severest conditions possible.

The installation of Jenkins Valves is an assurance of Dependability and freedom from valve annoyance.

Reduce your complaints by specifying Jenkins Valves. Their 57 years' record is a guarantee of a two-fold satisfaction—satisfaction for you and the man who pays the bill.

Every genuine Jenkins Valve has a Diamond Mark cast on the body. Look for it in every case.

Write for Catalog No. 8.

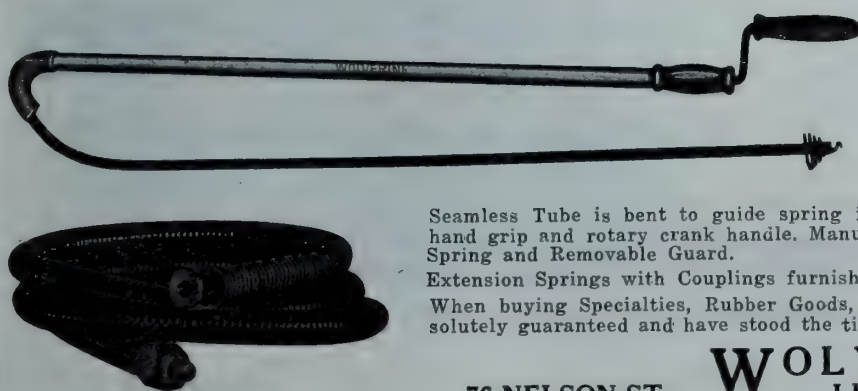
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Head Office and Works: 103 St. REMI St. MONTREAL Can.
TORONTO EUROPEAN BRANCH 6 GREAT QUEEN ST. LONDON, W.C.2. VANCOUVER
APPLIED IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD

WHAT IS YOUR ADVERTISING DOLLAR BUYING?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal. By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

Sanitary Engineer's circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.



Simplex Closet Augers and Extension Springs

Seamless Tube is bent to guide spring into closet and provided with convenient hand grip and rotary crank handle. Manufactured with 3 or 6 foot Flexible Wire Spring and Removable Guard.

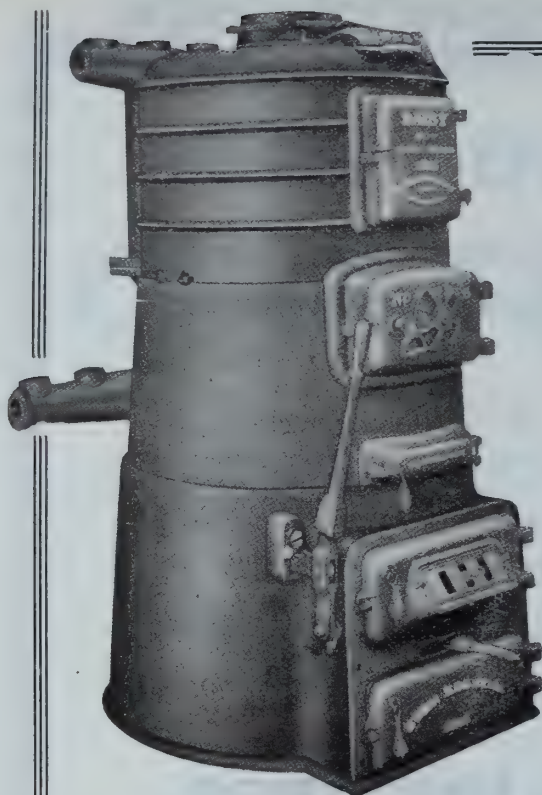
Extension Springs with Couplings furnished in 3, 6, 12½ and 25 foot lengths.

When buying Specialties, Rubber Goods, etc., remember Wolverine Lines are absolutely guaranteed and have stood the time test.

76 NELSON ST.

WOLVERINE
—LIMITED—

TORONTO

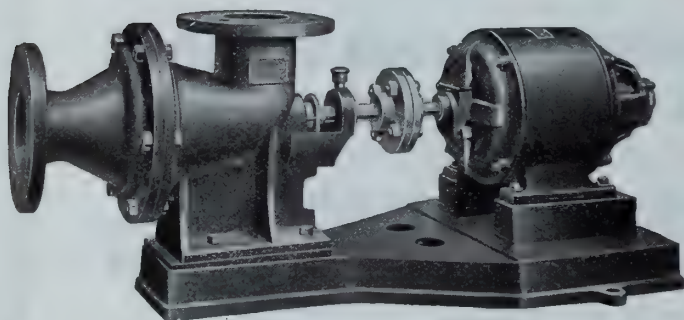


Perfect Combustion **DAISY** Hot Water Boilers

Whenever possible, take your prospect to see a Daisy Hot Water Boiler in operation.

Open the clean-out door and show him the flue surfaces and the clever design by which so large a surface of water is exposed to heat at one time. Show him the dumping and rocking grates and the fine, light character of the ashes that shake down. Show the draft and damper system and how easily temperature and fuel consumption are regulated. These features will suggest to you many other points.

WARDEN KING, Limited, Montreal
BRANCH OFFICE: 136 Simcoe St., TORONTO



Non-Rustable in its Vital Parts
Through Gravity Flow When the
Motor Stops

To Build Confidence

Is to recommend something that
will give lasting satisfaction to
your customers.

Hot Water Heating Systems
EQUIPPED WITH

ATLAS POSITIVE CIRCULATORS

ADD ANOTHER LAUREL OF FAITH IN THE CONTRACTOR

For Centrifugal, Vacuum and Condensation Pumps write:—

THE ATLAS ENGINEERING and MACHINE CO., LTD.

MANUFACTURERS OF DEPENDABLE PUMPS

23 River Street

Toronto



True Economy Stack Heater

The Stack Gas Water Heater will heat water in one minute.

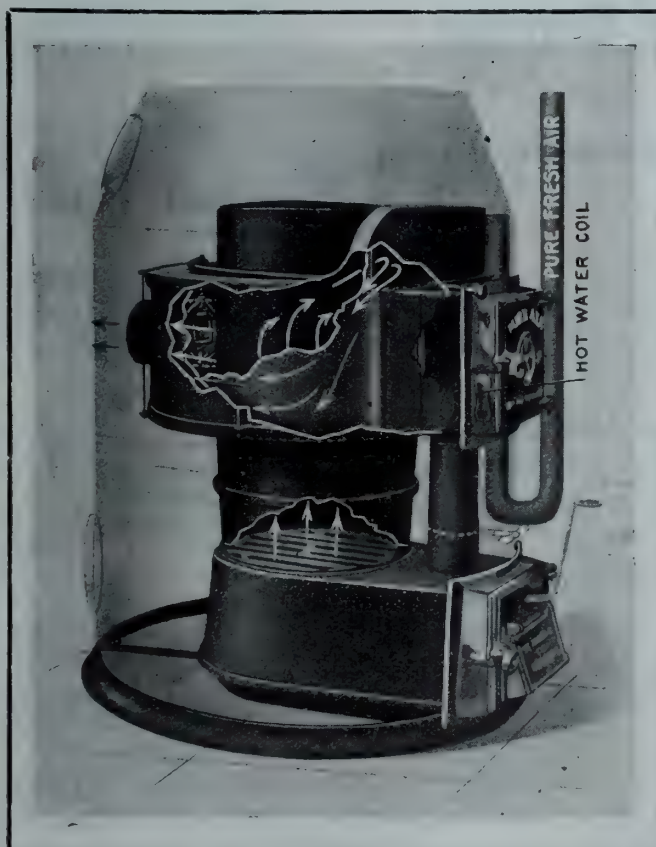
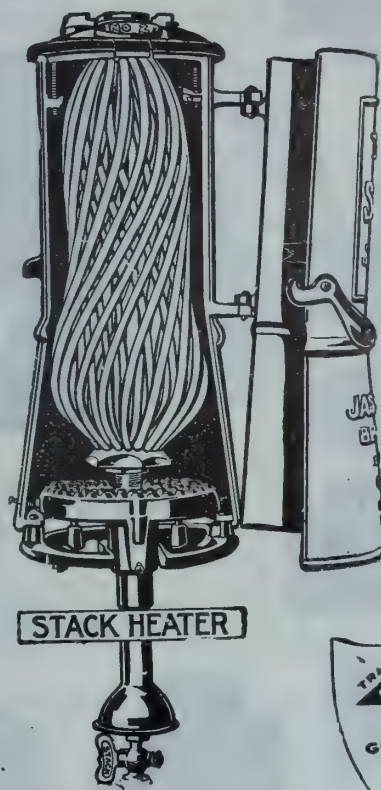
The almost perpendicular copper pipes in the Stack Heater offer no hindrance to the natural tendency of water to rise when heated.

Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co. Limited
93-97 Adelaide Street West, Toronto, Ontario



VULCAN

Furnaces with no ash-sifting

That alone makes a powerful appeal to your prospects. A furnace designed for combustion so complete that no ash-sifting is needed will interest anyone. That's why

Vulcan Pure Air Furnaces

sell so well. The constant supply of pure fresh air makes it the most healthful form of heating, as well as most efficient.

The grate is simple, reliable and so designed that no coal can drop through.

Vulcan Pure Air Furnaces are satisfactory in service, economy of fuel, comfort in the home and ease of operation.

Write, today, for other convincing details that will help your business.

The VULCAN CO., Limited

Founders and Machinists

London, Canada



FITTINGS LIMITED

OSHAWA, CAN.

MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

Mr. Sanitary and Heating Engineer:

Advertising For You
At a Reasonable Price
With a Personal Touch

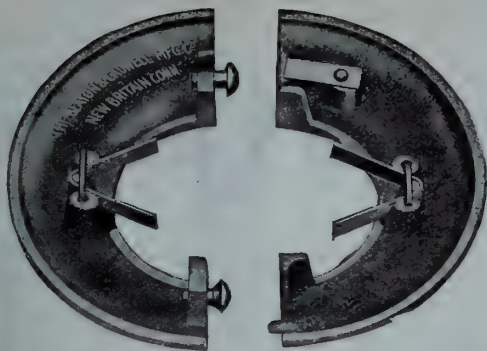
We have prepared a series of mailing cards with a brief write-up on timely subjects. They are printed with your name and address on good stock, $3\frac{1}{4}$ in. x $5\frac{3}{4}$ in. for insertion by you along with your invoices and receipted bills. The subjects are:—

"Going Back For Material"
"Promises and Disappointments"
"Free Advice on Heating Plants"
"We Desire to Satisfy"
"A Little Co-operation Helps"

The cost, oh, yes, is only 1c per ad, \$1.00 per hundred cards, \$5.00 for the series—cash with order.

Perhaps we overlooked mailing you your sample set. Drop us a line and we will rectify the error.

"ALLPRISER,"
4 Irwin Avenue,
Toronto.



High Quality at the Right Price

Split Ceiling Frame

The No. 10—A narrow Flange Plate—is a steel plate Flanges $\frac{3}{4}$ " wide. Highly finished, especially designed for twin connection "narrow."

The split ceiling plate is coming more and more into use than ever and always gives a nice finish, because it can be attached to mains and risers at the very last and is not exposed during completion of a building on the floors.

Gem No. 4 Automatic Air Valve

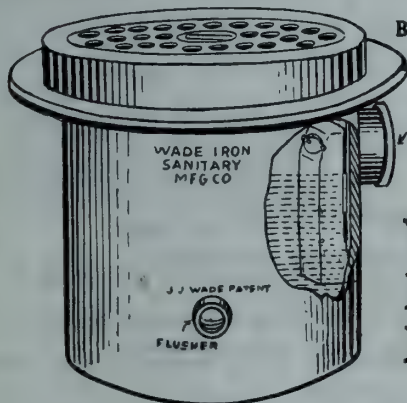
Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases. Write for catalog showing our complete line of specialties.

The Beaton & Cadwell Mfg. Co.

New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co.
New Birks Bldg.
Montreal

Western Agents:
A. E. Hinds & Co.
Chamber of Commerce
Winnipeg.



B Fig. 124 - Floor Drain

For Dairies and
Concrete Floors

Wade Floor Drain

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction. Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

Write for Catalog "B"

Wade Iron Sanitary Mfg. Co.

551-553 Fulton St.

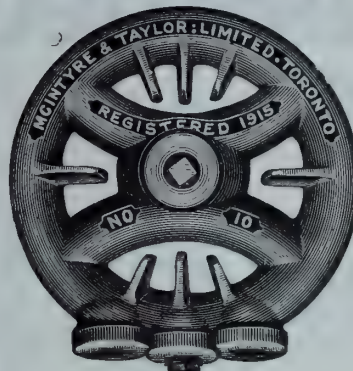
CHICAGO, ILL.

Manufacturers and Dealers in

Back-Water Fittings, Iron Garage Basins, Floor Drains and All

M. & T. COILS

EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited

TORONTO

501-3 Queen Street W.

MONTREAL
55 St. Francis-Xavier Street

WINNIPEG
156 Lombard Street

WE MAKE

TANKS

FOR ALL PURPOSES

Air Receivers
Boilers (Hot Water)
Tanks
Storage Tanks

All Kinds of
Steel Plate Work
Smoke Stacks
etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office:
105 Ritchie Ave.
TORONTO

THE GENDRON MFG. CO. Ltd., TORONTO



Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

**AIR LINE SYSTEMS**

C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ALUMINUM CASTINGS

Fittings Limited, Oshawa.

AIR PRESSURE TANKS

The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES

Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS

James Morrison Brass Mfg. Co., Toronto.

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Gendron Mfg. Co., Ltd., Toronto.

BENDING SPRINGS

W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER

The Canadian John Wood Mfg. Co., Toronto.
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Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS

Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER STANDS

Fittings Limited, Oshawa.

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J. H. Williams & Co., Brooklyn, N.Y.

BOLTS AND NUTS

Fittings Limited, Oshawa.

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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trumont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE

Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CASTINGS

Fittings Limited, Oshawa.

CELLAR DRAINERS

Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CHAINS

Fittings Limited, Oshawa.

CIRCULATORS

Atlas Engineering & Machine Co., Ltd., Toronto
J. H. Williams & Co., Brooklyn, N.Y.

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Empire Mfg. Co., Ltd., London and Toronto.
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Gurney Foundry Co., Ltd., Toronto.

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Sanitary Engineer Marketing Reports are eagerly looked for by progressive plumbing and heating Engineers of Canada.

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Sanitary Engineer Marketing Reports are compiled at considerable expense. We are determined to keep them reliable, complete, and up-to-date.

Sanitary Engineer
Plumber and Steamfitter of Canada

INDEX TO ADVERTISERS

Allison, K. B.	42
Amherst Foundry Co. . . Inside front cover	
Atlas Engineering Company	40
Atlas Tank Works	43
Beaton & Caldwell	43
Canada Metal Co.	9
Canadian Brass Co.	2
Canadian Tube & Steel Products	48
Canadian Combustion Co., Ltd.	47
Crane, Limited	3
Cunningham & Hill, Ltd., W. H.	37
Dennis Wire & Iron Goods Co.	4
Dominion Sheet Metal Corp., Ltd.	1
Empire Brass Mfg. Co. . . Outside front cover	
Fittings Limited	42
Galt Brass Co. Back cover	
Gendron Mfg. Co., Ltd.	43
Hause Mfg. Co., Chas. F.	48
Hourd & Co.	48
Hall Zryd Foundry Company, Ltd. . . . Inside back cover	
Healy-Ruff Co.	48
International Malleable Iron Co.	33
Jardine & Co., A. B.	35
Jenkins Bros., Limited	39
Katie Foundry	48
Kerr Eng. Co., Ltd.	35
Marks & Co.	48
McIntyre & Taylor, Ltd.	43
Morrison Brass Mfg. Co., Ltd., Jas. . . .	41
Mueller Mfg. Co., Limited, H.	31
Port Hope Sanitary Mfg. Co., Ltd. . . .	24-25
St. Louis Technical Institute	45
Spencer Heater Co.	6
Standard Sanitary Mfg. Co.	10
Steel Trough & Machine Co.	48
United Brass Founders	37
Vulcan Co., Ltd.	41
Wade Iron & Sanitary Mfg. Co.	43
Wallaceburg Brass	5
Warden King, Limited	40
Williams & Co., J. H.	47
Wolverine, Ltd.	39

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West Furnace Carburetors and Smoke Abaters need only to be shown to be sold.

For this device actually saves 15% in fuel bills as a minimum.

Territories are still open.
Write now—**Now.**

The Canadian Combustion Co., Ltd.

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HAVE YOU SEEN WILLIAMS' "FALCON" DROP-FORGED PIPE AND FITTING WRENCH?

It's the greatest improvement in pipe wrench design, users tell us, since we introduced the "Vulcan."

Six sizes, with either flat link or cable chain, for 1-8 to 12 inch pipe and fittings.

Send for booklet.

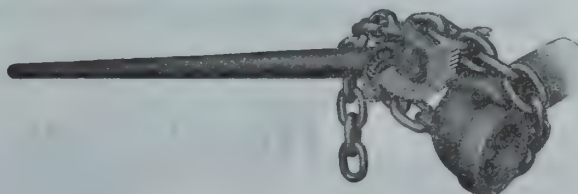
J. H. WILLIAMS & CO., Limited

"The Wrench People"

Formerly Canadian Division of
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77 Thorold Road

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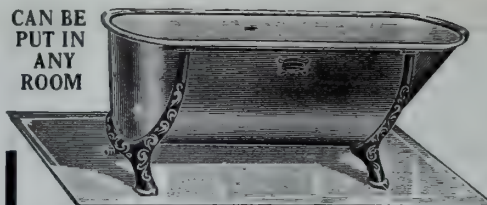


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PUT IN
ANY
ROOM



**PROFITS
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This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enameled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

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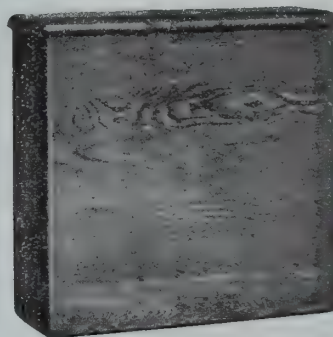
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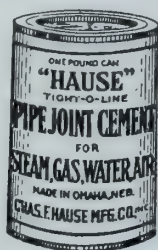
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Makes pipe work easy Liquid form.

Packed in 1 lb., 5 lb., 25 lb. and 50 lb. cans and in 100 lb. jackets.

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Tapped Closet Bend

Easier to attach

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E-Z Radiator Hangers are now manufactured in Canada

Some very attractive features are the ease with which the horizontal, vertical and base-board adjustments are made; only one bolt used; price very reasonable.

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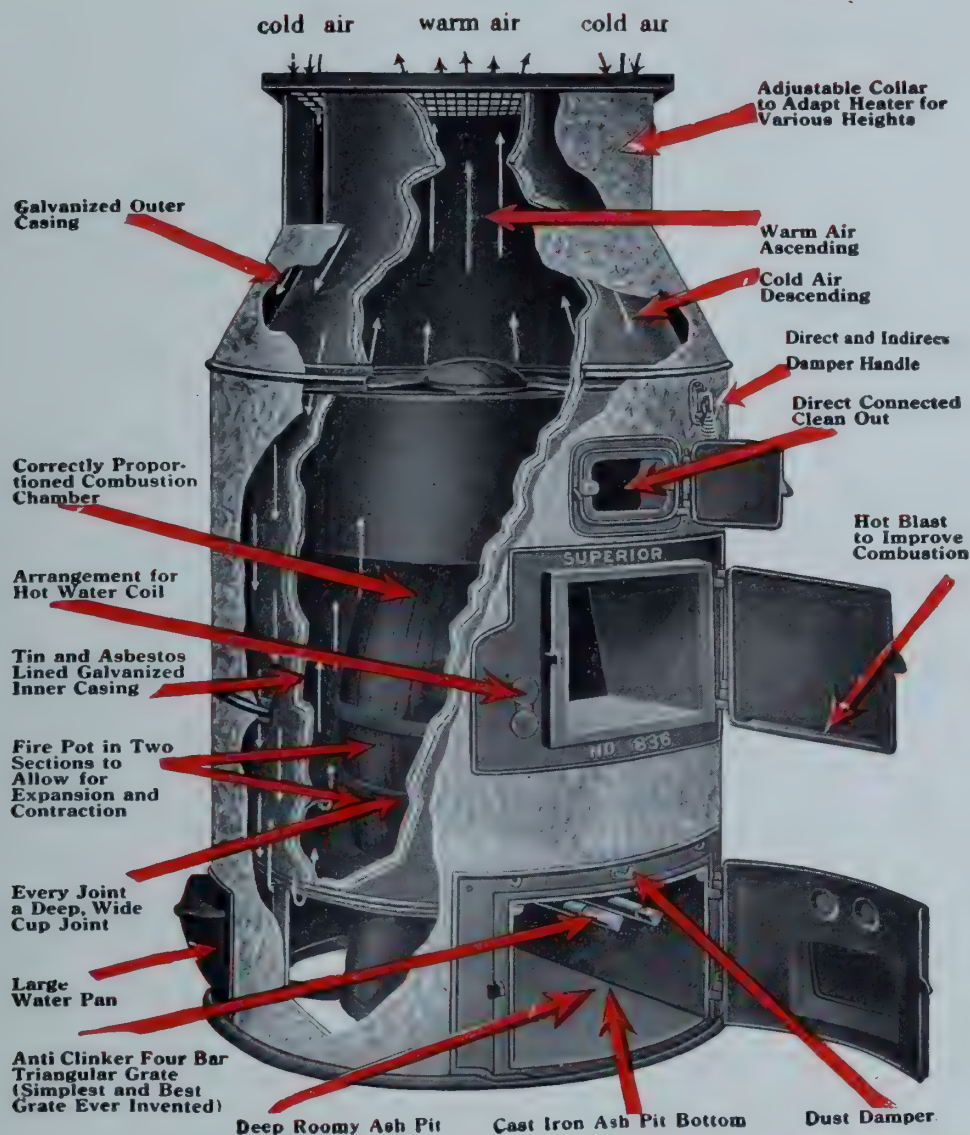
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They Make Comfort For Consumers and Money For Plumbers

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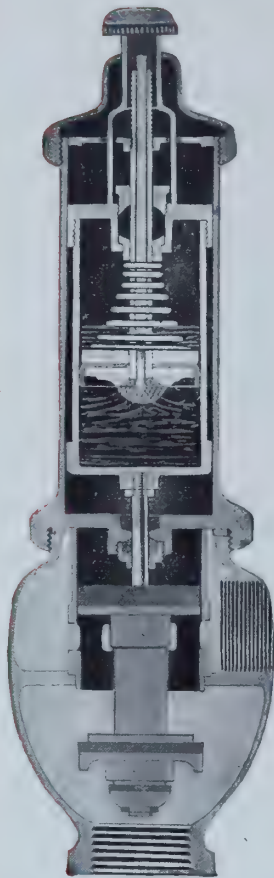


The Hall Zryd Foundry Co., Limited

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Manufacturers of Pilot Stoves, Ranges and Furnaces

Hespeler - Ontario



Sectional View
Of
PerfectO Flush Valve

Showing the oil-chamber with the working parts completely cut off from contact with the water. The flow of water may be easily and quickly regulated to suit varying requirements.

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Why an Oil-Controlled Valve?

WHAT IS the logical medium for regulating a flush valve? Water? Water often contains impurities that obstruct the by-pass and interfere with the smooth working of the valve.

Oil! There is the answer. PerfectO Flush Valves are Oil-Regulated. Water can't cause any trouble—because no water can get into the by-pass—nothing but high-grade mineral oil.

This oil is contained in a sealed, cast-brass chamber. It cannot escape or evaporate and never needs replacing. Its density is unchanging—hence the action of the valve, once it is adjusted, does not vary. PerfectO Flush Valves are Oil-Controlled because an oil-controlled valve gives better service for a longer time. And that's why there is genuine satisfaction ahead when you install PerfectO Oil-Regulated Flush Valves.

GALT BRASS CO., LIMITED
GALT, CANADA

PERFECTO
OIL REGULATED
FLUSH VALVE

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XV.

PUBLICATION OFFICE, TORONTO, DECEMBER 15, 1921

No. 24



TO ALL our friends and customers
in every community of this broad
Dominion we extend heartiest greet-
ings for a Happy Christmas and a
Prosperous New Year.

Empire Brass Manufacturing Co.,

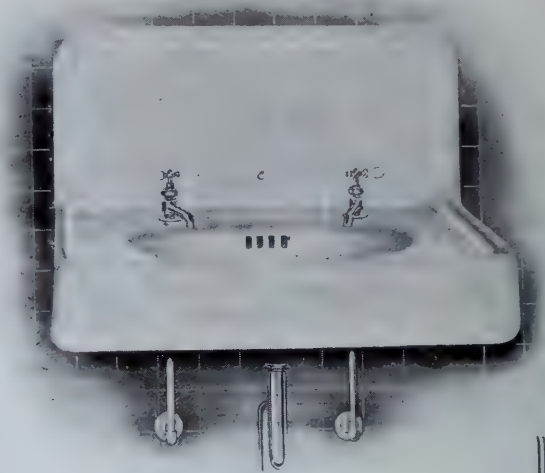
Limited

LONDON and TORONTO, CANADA

Beaver Brand

Porcelain Enamel

Plumbing Fixtures



Porcelain Enameled One-Piece Lavatory

"Beaver" Porcelain Enameled One-Piece Lavatory is illustrated above with Apron, Oval-Shaped Basin with rear outlet, Patent Overflow and Chain Stay, on concealed Brackets.

Dimensions—Size of Lavatory 16 x 20 inches; Basin 10 x 14 inches; Height of Back 8½ inches; Depth of Apron 4¼ inches.

Roughing in Measurements—Centre to centre of Supplies 11½ inches; Centre of outlet to wall 6¼ inches; Centre of supplies to wall 3½ inches.

"Beaver" Porcelain Enameled 2-section Laundry Tub, on painted iron stands, with Roll Rim and High Back, cast in one piece. Complete with two wringer holders, N. P. Soap Dishes, Plugs and Stoppers, Painted exterior.

Dimensions—Length over all, 52 inches; Height from floor to Top of Tub, 30 inches; Height from Floor to Top of Back, 40 inches; Front to Back inside 25¼ inches; Front to Back inside, 21 inches; Depth inside 13½ inches.

Roughing in Measurements—Centre to centre of Supplies, 9 inches; Centre to Centre of Outlets, 24½ inches; Centre of Waste to wall, 6 inches; Centre of Waste to End, 14¼ inches; Height of Stands, 16¼ inches; Distance from floor to centre of Supplies, 34¼ inches.

Amherst Foundry Co.

Limited

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AMHERST, N. S.

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Manitoba and Northwest
E. B. Plewes,
197 Princess St., Winnipeg



Porcelain Enameled 2-Section Laundry Tub.



Christmas 1921

To our many friends in the plumbing trade of Canada we extend our best wishes for a very Merry Christmas.

As the chimes and whistles announce the birth of a New Year, our sincerest wishes speed forth to every member of Canada's plumbing trade wishing him all the success possible in 1922.

Canadian Brass Company

Limited

Galt

Toronto.





HALL

AN ODE TO THE PILOT.



The "Pilot" Line now shows the way,
Our Pipeless Furnaces have come to stay,
The Tinsmiths used to kick and squeal,
But now Bedad's, they think "ALL'S WEAL."

A Merry

The Superior Pipeless is the boy,
That fills the country-side with joy,
The women all now sing its praise,
As the cold, cold seasons become June days.

When a smoker's pipeless he's just a brute,
Do what you will he's liable to shoot,
Like a house without a "Pipeless" in it never live,
It's dear at any price, no matter what you give.

In all the cellars, now what can be found?
Not cabbages rotten, but vegetables sound,
It sends all the heat right into the house,
And your cellar's so cold it would freeze a mouse.

When the Coal man comes to collect his bill,
You don't need to dig to the bottom of the till,
The heat's kept in and the Doctor's kept out,
So the old Superior Pipeless makes you holler and shout.

Now let me tell you one and all
If you want solid comfort what to install,
The Superior Furnace will fill the bill,
But the Pilot Success might be better still.





ZRYD



Christmas

And a very

Happy, Prosperous

New Year

**THE HALL ZRYD FOUNDRY COMPANY
LIMITED**

Manufacturers of Pilot Stoves, Ranges and Furnaces

HESPELER, ONTARIO

WESTERN BRANCH : P. O. BOX 687, WINNIPEG, MAN.



A
**Merry
Christmas
And a very
Happy,
Prosperous
New Year**

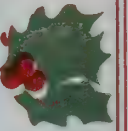
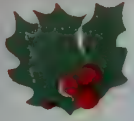


To those whom we have served in 1921 we are grateful. To those whom we hope to serve in 1922 we offer our confident belief that the new period holds great promise for normal, stable, Canadian prosperity.

To mankind in general, we extend a spirit of good fellowship and all good Christmas wishes.

WARDEN KING, Limited
MONTREAL

BRANCH OFFICE : 136 SIMCOE ST., TORONTO



The Manufacturers of

*Electric
Weld*

Range Boilers



Wish

You All

A

Merry Christmas

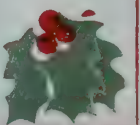
And a

Happy New Year

Canadian John Wood Mfg. Co., Limited

Grand Trunk Railway and Hillingdon Avenue

Toronto, Canada



To All

Heartiest Greetings!

To our readers, whose common needs and interests make the publication of this journal a necessity.

To the advertisers whom we have served in the past and whom we will serve in the future.

To all, because—it's Christmas-Time.

Trusting that the New Year will witness the dawn of a new era of prosperity, and confident that, in some measure, our good wishes are reciprocated, we wish you, one and all, the Happiest of Christmases and a most Prosperous New Year.

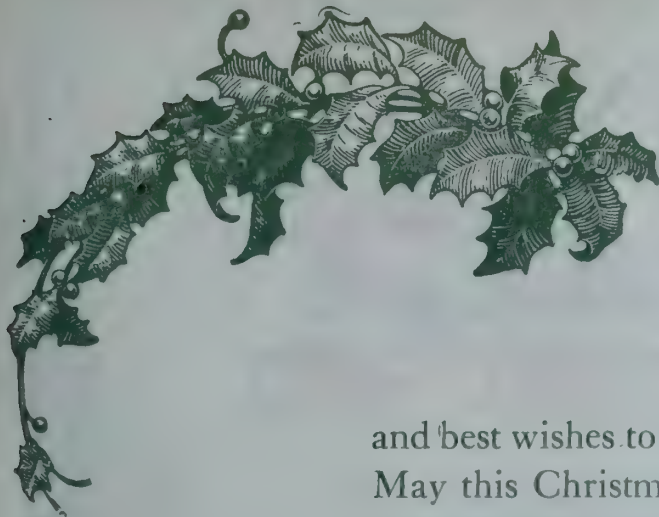
Yours truly,

SANITARY ENGINEER.



Advertising Manager.





GREETINGS!

and best wishes to all our business friends—everywhere.
May this Christmas be the forerunner of a most prosperous year in all lines of the plumbing and heating trade.

The James Morrison Brass Mfg. Co. LIMITED

93-97 Adelaide Street, West - Toronto, Ont.

In calling to mind the many pleasant transactions we have had with the Wholesale and Retail Trade during 1921, we feel it is a rather difficult task to express our thanks and good wishes in mere words.

Can only say we are glad to be with you. We sure get a lot of fun and satisfaction out of taking care of your orders and we wish you one and all

A Merry Christmas

Satisfactory Heating—Proper Sanitary Equipment and “A Bath a Day” go a long way toward providing Health and Prosperity—May you have all you can handle and a little more in the New Year.

WOLVERINE

LIMITED

76 Nelson St.

Toronto

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA.

ESTABLISHED 1907

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CONTENTS

Xmas Greetings: Improved Outlook for Plumbing Trade in 1922..	11
Developing Active Xmas Trade in Plumbing and Heating Goods..	12
Bathroom Equipment as Xmas Gifts	13
Self Corrosion of Cast Iron Pipes	14
Master Plumber Would Confine Showrooms to Wholesalers	15
Relative Costs of Warm Air Installations	16
Puts Prices on All Plumbing Gift Suggestions	17
Editorial Comment	18
Patterns for Spiral Conveyor	19
Getting Cash for Plumbing Business	20
Sewage Disposal for Small Communities	21
News From Here and There	22
Contracts Awarded	23
Market Conditions and Tendencies, Montreal, Toronto and Winnipeg	26-34

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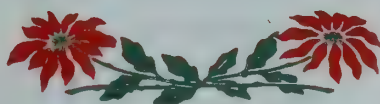
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"Standard"

PLUMBING FIXTURES



Christmas Greetings

We extend our thanks for the patronage of the plumbing trade during the past year. With a feeling of good-will and friendliness to all, we extend our best wishes for a Merry Christmas and a New Year abundant with good health, good business and consequent prosperity for the trade.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond St. E.
Calgary:
325 Eighth Ave. W.

Montreal:
New Birks Bldg.
Vancouver:
860 Cambie St.

Winnipeg Showrooms:
76 Lombard St.
Hamilton Store:
20-28 Jackson St. W.



*No. 7.

BOILER PRESSURE CONTROL

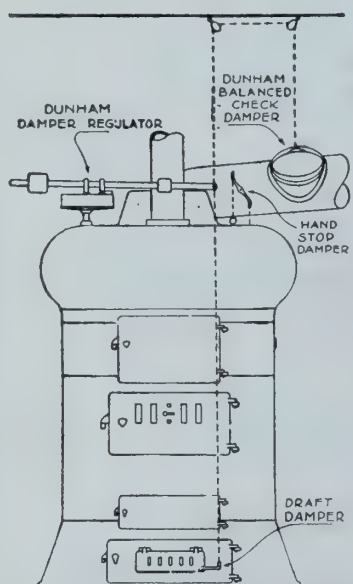
Eight ounces of pressure should be the maximum amount required on any Dunham Home Heating System, more often it is two or four ounces. The desirability of effective damper control to guard against wastefulness of higher pressure is apparent.

Too many times in the past, a damper control has been considered a needless *decoration* on a steam boiler, and something soon to be discarded, but one might as well discard the carburetor on an automobile. The trouble in many cases in the past of an unsuccessful damper control, rested on improper installation.

A hand damper should be installed in the smoke pipe to regulate the intensity of the draft to suit varying weather conditions.

A balanced check damper full size of the smoke pipe must be installed in the smoke pipe, as this is the most effective device for checking the fire with resulting fuel economy.

The diaphragm damper regulator on the boiler must be of a size suitable to respond to the low pressure four to eight ounces, which it is desired to maintain.



This is the seventh of a series of talks on steam heating, appearing monthly in Sanitary Engineer. You will find all very interesting and of help in your daily work.

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

Made in Canada

C. A. DUNHAM CO., LIMITED, TORONTO, ONT.

Halifax

Vancouver

Winnipeg

Ottawa

Montreal

Calgary

London: 233-A Regent Street, W. 1.

XMAS GREETINGS FROM CANADIAN SOCIETY D. S. & H. E. 1922 OUTLOOK FOR BUSINESS

"WE sincerely believe that the business to be done in our trade in 1922 will exceed in volume that of last year and will be performed under much better conditions.

"Trade conditions in general are improving, and although up to the present the gain appears slight, it is sure and steady. Building construction in the present closing month of this year is being carried out to an encouraging degree. Buildings under erection are mostly of the smaller class, but this alone promises well for the future, when the weather opens, permitting increased activities next spring. Further demands for homes all over the country, many more in the cities and greatly improved ones in the country an improvement here also, and while many lines must still be brought to a lower level, we have every reason to believe a more stable condition will prevail. These improved conditions, now evident, enable us to look forward to 1922 with confidence.

"We have pleasant memories of the many friendships made at the Quebec Convention, and trust to renew them all at our next, and we take this opportunity of wishing all members of the Canadian Association of Domestic Sanitary and Heating Engineers a Very Merry Christmas and a Happy and Prosperous New Year.

"The public are appreciating more and more our value, thanks in a great measure to the effectiveness of the work carried on by the various local Master Plumbers' Associations and through the city and municipal councils of the Dominion which are co-operating splendidly with us in our efforts to ensure that the homes of the people are equipped with the most effective heating, ventilating and sanitary arrangements.

"Our mechanics are giving the public and ourselves better value than ever, and are realizing as never before that a fair day's work is sure of a fair day's pay. The prices of plumbing materials are receding, gradual in some instances, while of a more marked degree in other commodities. The trend of the market for supplies for the past twelve months has not been beneficial to the trade because of the amount of unsettlement, which constructed a barrier to the prospective builder, whether large or small. We can look for

more steady conditions and an increasing volume of trade during 1922 and the extent of this business will be limited only by the amount of energy and thought which every operator puts forth."

(Signed) T. LATOURELLE, President.
D. K. TROTTER, Secretary.

Sanitary Engineer supports the sentiments as expressed herewith by officials of the Canadian Society, D.S. & H.E., and in extending to all readers the timely wish for a Happy Christmas season and a Prosperous New Year, it is the firm conviction that the desired end can be achieved during the year 1922 if all bend their various communities. Sentiment is changing in favor and close study of requirements to develop the greatest possible volume of trade.

Through organization, great strides forward have been made in the plumbing and heating industry in recent years, and this progress has stamped the operators in this industry as being sufficiently important to justify a high place in the business interests of favor of the plumber whose person and business methods their various communities. Sentiment is changing in were once thought to be not above reproach. This improvement in status has come largely through the far-sightedness of those leaders in the industry many of whom today are still the bulwark of the trade and who are doing all in their power to improve the conditions of this industry.

The following out of these principles during the year 1922 should be very productive. Many authorities are predicting an increasing volume of new building. In this connection it is interesting to note that one authority states that house building done in the recent months of this year represents as large a volume of house building as has been done in the same period in any previous year. If this is the case it is a good omen for the volume of building likely to be undertaken as soon as Spring weather permits, and every operator should plan his business so as to be able to take every advantage of it when it comes.

The merchandising of plumbing and heating equipment on the basis which has been established by other trades should also be a distinct help in increasing the volume of business.



TELESPHORE LATOURELLE
President Canadian Society D. S.
and H. E., who extends Xmas greet-
ings and New Year's wishes to the
trade, and deals briefly with the
outlook for 1922.

Developing an Active Xmas Trade In Plumbing And Heating Goods

CHRISTMAS offers many opportunities to plumbers for the sale of bathroom equipment. To some in the trade this suggestion might seem to have little foundation, but those who harbor such ideas are the ones who require the most help in order to become merchants of plumbing equipment. The public must be educated to a better appreciation of plumbing and heating goods, everyone in the trade realizes this and one of the ways to achieve this end is to put the sale of such fixtures on a merchandising basis. The example of other retail merchants must then be followed and every advantage taken of the current seasons or events to push the sale of such equipment. It will therefore not only be an immediate source of trade to attract Christmas

business but it will be an influence on the future course of trade to show that the sale of plumbing and heating equipment is on practically the same basis as that of other goods.

The Merchandising Idea

In recent years many contractors have realized the opportunities which Christmas presented for increasing business and their efforts have borne fruit. Those contractors who have the merchandising idea are using it actively at this time. The trend in recent years has been toward the giving of more practical gifts, and what could be more useful than plumbing and heating equipment? In view of investigations which have shown the important influence on the health of the community of efficient

plumbing equipment, there should be little hesitancy in offering it as suitable for Christmas gifts. True many of the more cumbersome pieces could not be made to look quite as appealing as some other articles tied up with dainty ribbons, but there are such accessories as towel bars, mirrors, soap dishes, brush holders, tumbler holders, sponge racks, etc., which present an attractive appearance and which lend themselves admirably to attractive parcelling. But the large pieces of plumbing equipment lend themselves equally well as Christmas gifts and after all, the wrappings are soon forgotten and the true value of the article is all that holds appreciation for it.

What will cheer the heart of the housewife more than to have a snowy

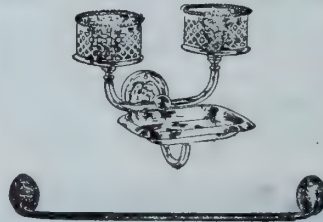
Have The Plumbing Right For Xmas.



The following are a few of the many ways in which you can guard against the possibility of having the plumbing in your house done right.

C.R. HOBEN & Company
131 GRIMMILL ST.
Plumbers, Sheet Metal Workers, Tin Smiths,
Heating Engineers, Kitchen Furnishers.
PHONE SACKVILLE 1103


WHY PUZZLE YOUR HEAD?



About Christmas Presents when we have done the puzzling already by stocking our Showroom with useful Presents, which your Relatives and Friends can use every day and appreciate. Our Special Christmas "Wanted" Goods include Medicine Cabinets and Mirrors finished in Oak and White Enamel and Nickel Plated Bathroom Fixtures, such as Towel Bars, Soap Dishes, Tumbler, Toothbrush and Toilet Paper Holders, and Glass Shelves with N. P. Brackets.

McKelvey & Birch, Limited
SHOWROOM: 66 BROCK STREET - PHONE 227

BUILDING COSTS ARE DOWN



This is your opportunity to put up that house or outbuilding which you have been intending to build, but have only been waiting for Lower Prices.

Ask us for Quotations on all Kinds of BUILDING MATERIAL

Remember, too, that this is the place to order your PIPING, PIPE FITTINGS, and PLUMBING SUPPLIES

We Stock CEMENT in Best Quality Only.

WILLIAM RITCHIE
Phone 28

Non-Leakable Laundry Tubs

That is the kind we will install in your laundry—the kind that will not give you trouble after a few weeks or months of constant use. We have large, spacious tubs lined and finished in porcelain, enamel, etc. Better see them at our place.



R. Chestnut & Sons, Ltd.
Phoenix Square
H. W. Thorne, Mgr.
Plumbing Department



WHITE ENAMEL IS BEST for bathroom fixtures. So easy to keep spotlessly clean and absolutely sanitary. We carry the largest and finest stock of white enamel and porcelain bathroom and bed room plumbing fixtures in this section. We also repair sanitary plumbing equipment of all kinds. Inspection invited.

MOFFATT & PARR
Sole Agents for "Held" Furnaces
Plumbers. Phone 533. Barrie

Plumbing on Monthly Payments

\$10 down will put in your Plumbing System. Balance on monthly payments

Call or Phone and we will be pleased to quote prices, with terms to suit you

We have a complete line of plumbing fixtures on display. All work and material fully guaranteed

W. J. WALSH
Dundas
Phone 45
King Street

white sink, laundry tub, built-in bathtub, pedestal lavatory, laundry tray, water heater, etc. If she has been forced to do without such comforts, or has been getting along as best she can with inefficient equipment, there will be no gifts more appreciated than those outlined and others which the contractor can supply.

Permanent Value

In appealing for such business it can be used as an argument that the purchase of such lines not only provides a suitable gift, but it is something of more or less permanent value due to its long period of usefulness and due to the fact that such equipment will pay for itself in saving time, patience and health. Should the property be sold the modern plumbing equipment will bring a price equivalent to its value.

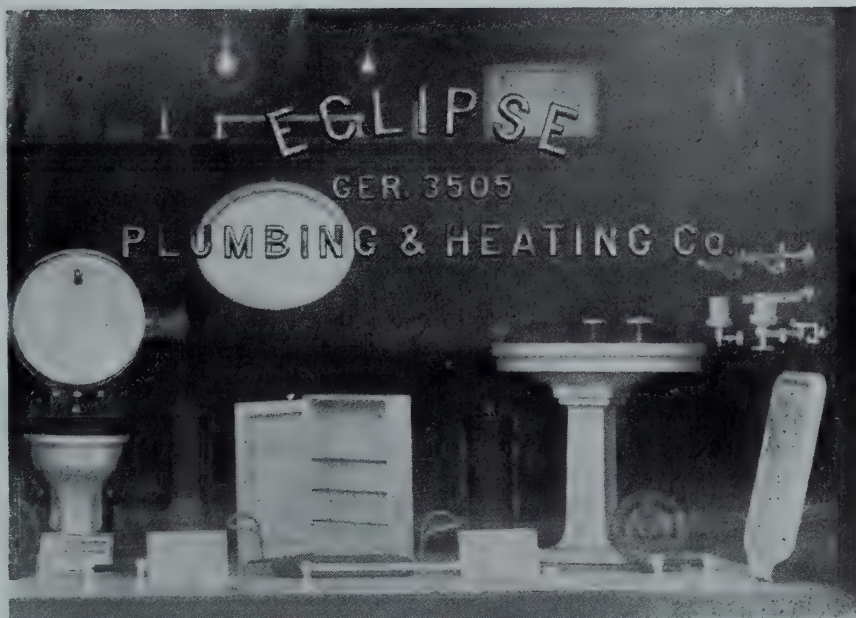
The list of suitable gift lines in the plumbing and heating contractor's shop can be extended to include a new set of taps, showers, heat regulators and electric pumps, to say nothing of the list of small accessories aforementioned. For the rural prospect an electric lighting system or water supply system might be suggested. Where these are already installed a large number of accessory lines can be offered.

In order to convince the public that such lines will make suitable gifts for Christmas, the utmost advantage must be taken of merchandising plans such as advertising, window and store display, mailing lists, etc. Throughout all the effort the practical nature of gifts of plumbing and heating equipment should be emphasized and definite suggestions put forth for various members of the family. If the contractor can make a survey of conditions in many local homes, taking information from the report cards of his men, it would pay to send out personal letters to certain of the best prospects indicating exactly what piece of equipment they could use to best advantage and why it would pay to pool their money for presents and buy some such equipment rather than fritter it away on a lot of small goods which will soon be forgotten. Few men who own property would resist such a suggestion which offers a suitable gift and which will add value to his property, to say nothing of the comfort, better health and time saved to members of his family.

Using Merchandising Principles

It will take much application of merchandising principles to bring about a thorough appreciation of this point of view on the part of the public, and it will be necessary for every contractor to do his part to educate his prospects. When this is done, Christmas will no longer be looked upon as a time of inactivity in the plumbing and heating trades, but on the other hand will be looked forward to as a time which offers

Bathroom Equipment For Xmas Gifts



While many of the small lines of bathroom accessories are frequently offered as Xmas gift suggestions, this might well be extended to some of the larger pieces of equipment such as are shown in this seasonable display of Eclipse Plumbing and Heating Co., Toronto. This display includes basin, enamelled drip tray, closets, furnace rings, medicine cabinets, in addition to medicine chest, towel bars and some of the smaller accessories.

splendid opportunity for developing sales.

In the ad layout shown in connection with this article, some suggestions are given for the advertising of such lines for Christmas. The ad by C. R. Hoben & Co., Halifax, N. S., under the title, "Have the plumbing right for Christmas" says "The Christmas season is a bad season for pipes. You can guard against the contingency of having the festivities marred by having your plumbing inspected now.

Under the heading, "Why puzzle your self about Christmas presents?" the ad by McKelvey & Birch Ltd. Kingston, Ont. continues "when we have done the puzzling already by stocking our showroom with useful presents which your relatives and friends can use every day and appreciate. Our special Christmas goods includes medicine cabinets and mirrors, nickel plated bathroom fixtures such as towel bars, soap dishes, tumbler, toothbrush and toilet-paper holders, and glass shelves with N. P. bracket."

An Effective Ad

Wm. Stairs Son & Morrow Ltd., Halifax, N. S. advertised for the Christmas trade as follows, "Make your Christmas gift one that will give unbounded pleasure to the whole family—one that will fill a real home need—a well equipped

bathroom. Do you know of any other gift that would create a greater degree of delight and that would give more comfort, month after month, and into the years, than this most enduring gift? There are prices and designs to meet all purses and tastes and each model guarantees a full measure of sanitary safety. Choose your bathroom equipment carefully for it is so well made and substantial that it will last a long time. If you let your showroom be your guide you will obtain the fullest measure of value for the money you expend."

R. Chestnut & Sons Ltd., Fredericton, N. B. suggest "non-leakable laundry tubs" at this time of year, stating in their ad "this is the kind we will instal in your laundry—the kind that will not give you trouble after a few weeks or months of constant use."

Advertising for plumbing and heating business under the heading that, "Building costs are down," Wm. Ritchie, Summerland, B. C. says "This is your opportunity to put up that house which you have been intending to build, but which has been postponed, waiting for lower prices."

Other seasonable ad suggestions are shown by Moffatt & Parr, Barrie, Ont., and W. J. Walsh, Dundas, Ont., the latter advertising for business on a monthly payment basis.

Self-Corrosion Of Cast Iron Pipes

Discussion on Disintegration of Concrete in Alkali Soils Brings Out Result of Extensive Experiments Made With a View to Obtaining More Definite Information on Destruction of Cast Iron Water Mains, Particularly in Western Provinces

Reproduced in Sanitary Engineer by courtesy of W. Nelson Smith, M.E.I.C., Consulting Electrical Engineer Winnipeg Electric Railway Co.

(Continued from Nov. 15 Issue)

THIS set of experiments affords sufficient proof that the soils in the City of Winnipeg will corrode cast iron pipe on their own account, if given water enough and time enough. All samples of iron lost weight, and all but 2 pitted.

From the foregoing experimental study the following conclusions were drawn:—

1. The corrosion of cast iron by soil salts individually and collectively is readily accomplished under natural conditions, without access of stray current, and is of graphitic pitting nature, by which is meant the commonly observed condition of the material remaining in place, which is invariably of a soft spongy texture, with part of the iron dissolved out, the remainder resembling graphite in texture and softness, hence the term "graphitic."

2. Magnesium salts are the most corrosive of the soil salts, and magnesium sulphate, which was found wherever a cast iron pipe had been destroyed, is apparently the most effective of the salts experimented with.

3. Local action induced by naturally occurring concentration cells may easily be a factor in the pitting of cast iron exposed to salt by varying concentration.

4. Slight pitting corrosion was found in pieces of cast iron exposed to the action of small samples of wet soil and intermittently heated, even in the short period of 40 days, and with only a limited supply of water as compared with conditions in the ground, without any impressed e. m. f. being present.

Products of Corrosion on Cast Iron Pipes

The products of corrosion appear in two forms, first the scale and the iron compounds that form in the clay immediately upon and adjacent to the pipe, and secondly the residual matter in the so-called pits in the wall of the pipe itself. These were examined separately.

The scale was loosely adhering and contained considerable quantities of iron. It varied in color, thickness and consistency, but when first uncovered was usually a very dark bluish green turning yellowish red on exposure to the air. In all places where there was any quantity of scale it was noticeable that the moist clay removed from immediate contact with the pipe was saturated with this same dark greenish ferrous oxide which turned the clay

practically black. This was particularly noticeable in the case of clay that was packed against the end of a bell at a joint, the angle made by the joint being apparently a convenient collecting place for a considerable mass of this fresh ferrous oxide which is the first product of corrosion. Doubtless its presence at this particular spot is very often due to slight but continuous leakage through a pin hole in the lead joint. In very many places the greenish black ferrous oxide was present in much larger quantity than the reddish yellow ferric oxide, doubtless because the surrounding clay prevented access of sufficient atmospheric oxygen required for the formation of the latter. This condition was quite marked on a hydrant casing at the Manitoba Gypsum Works on the outskirts of Winnipeg, which is a mile distant from the nearest car tracks. The soil here was full of magnesium sulphate and chloride and the soft pasty scale was $\frac{3}{4}$ " thick on the pipe.

Table "E" gives analyses of several samples of scale.

TABLE E

	Nature of Iron in Pipe Scale			Remarks
	Metallic %	Ferrous %	Ferric %	
1.	1.4	30.0	7.4	Slightly magnetic
2.	4.2	9.7	13.0	Slightly magnetic
3.	0.4	12.5	0.2	Non-magnetic
4.	1.1	23.1	12.5	Slightly magnetic

Some analyses were also made of the residual matter in the pits. These pits are the soft, porous, honey-combed mass of the pipe remaining in place and still preserving the form of the pipe until ruptured by the pressure which it can no longer withstand. The substance of a pit may not differ in outward appearance from the uninjured wall of the pipe adjacent to it, but an inspection with the end of a knife blade discovers the pit and the soft mass can be easily dug away. This soft spongy residue consists of such electro-solution pressure as iron, together with residual iron not yet dissolved and hydrated iron. The metallic iron not yet removed may have been protected mechanically from the ground water by the graphitic-silicious matter in the residue. The large proportion of carbon gives the residue the consistency of graphite, and this sort of pitting is frequently called graphitic.

Table "F" contains the results of this analysis for several pipes from repre-

sentative localities. The first two were taken from near the centre of the city, but where the pipes would generally have been negative rather than positive to the track rails. The other three samples were outside the range of stray current, having been $\frac{1}{2}$ to a mile to $1\frac{1}{4}$ miles outside any probable path of the electric railway return. The first two samples had been in the ground the longest, which accounts for there being less metallic iron remaining in them.

Phosphate and Sulphide in Corrosion Products

Although it seems a comparatively simple matter to account for the fundamental chemical re-actions that result in the formation first of the ferrous and then of the ferric hydroxides, we have found other corrosion products of such a strange character as to make it evident that the corrosion process in the soils considered may be quite complex.

In some of the graphitic spongy residue in the pits of corroded pipes we have found ferrous phosphate incorporated with the other material, being noticeable by reason of its light bluish green color. Sometimes small lumps of it could be lifted out of the pipe pits as a filling can be lifted out of a cavity of a tooth. A partial analysis of one sample showed 18% of ferrous phosphate, 20% of metallic iron and 42% of carbon and silica. Evidently it did not occur in the original iron, but was formed in the corrosion products along with the hydroxides. It has sometimes been reported as a deposit in buried bones, but not as a product of stray current electrolysis. Why ferrous phosphate should occur in a corroded cast iron water main is a riddle that has yet to be solved.

Along with other corrosion products iron sulphide was found to be nearly always present both in the pits and in the scale, from pipes not only within the city, but several miles outside the electric railway area. A number of experiments were made with cast iron and soil samples in glass bottles to try and determine whether the sulphide was the result of self-corrosion or of stray current corrosion. Sulphide was found to be present in both cases, showing that it is not peculiarly a product of stray current electrolysis. The sulphur required for its formation seems to come chiefly from the free sulphur mixed in with the original cast iron, but it is also possible that the electro-chemical reactions

cause the reduction of the sulphates in the soil to sulphides. If it is an electro-chemical process it can happen as easily with galvanic as with stray current. Sulphides are found in pipe pits and scale on the inside of water pipes as well as outside. We have found sulphides in chips of wood and clay taken from the butts of electric light poles recently taken out of the ground, and it is suspected that the presence of sulphur forming bacteria may have something to do with the formation of sulphides, wherever found. We are not aware that either the phosphate or the sulphide of iron have been previously reported by other investigators of the corrosion of cast iron pipe.

The moisture content of the samples of soil collected in this investigation varied considerably. The electrical conductivity of the soils is a function of the moisture content as well as of the salt content, and it was deemed desirable to measure the electrical resistance and determine the moisture content of about 50 samples taken from various places.

Eighteen of the samples were taken directly from off water pipes, and the average moisture content was 28.75%, the range being from about 20% to 35%. The resistance of these same 18 samples averaged 570 ohms per cu. cm., which is a very low average rating of soil resistance. One was as low as 206 ohms, while another was 1085 ohms, the difference in these two instances being probably due more to difference to the salt content than the moisture content of the samples.

In several cases the resistance of the soil was measured twice, once in its natural condition as received, and subsequently in a saturated condition, and the results showed that when saturated the same soil would have its resistance reduced to only about one-quarter of its resistance when in its natural state.

In contrast to the foregoing samples of limy clay silt soils, the same measurements were made on a sample of coarse gravel backfilling next a water pipe in St. Boniface which showed only 3.4% of moisture and a resistance of 37,000 ohms per cu. cm. which was reduced on saturation to about 12,750 ohms.

In the face of the above comparison it is not surprising that pipes laid in gravel and similar porous soils are very seldom troubled with self-corrosion. The moisture content varies indeterminately with depth. Sometimes the dried soil is above, sometimes below, and there is no way of foretelling what the order will be at any one spot. The character of the soil varies at different levels and the capacity for holding moisture varies with the character of the soil. Clay soils are well known to be most tenacious of water.

One sample of soil was taken from around a gas pipe in a limy silt soil at Edmonton and St. Mary's Street, Winnipeg. The pipe was about 4 feet down.

The moisture content was only 4.5% and the resistance was 1965 ohms per cu. cm., or about $3\frac{1}{2}$ times the average resistance of the 18 samples taken from the water pipes. This fact is of particular interest also, because the soil around this gas pipe was comparatively dry,

while in samples taken 2 or 3 feet directly above and below, the moisture content was 3 or 4 times as great, and the electrical resistance less than one-half that of the soil directly around the pipe.

(To be Continued)

TABLE F
Composition of Matter in Pits on Cast Iron Pipe

	Metallic Iron	Ferrous Iron	Ferric Iron	Silicious-Graphitic Residue	Remarks
1.	26.2	23.0	2.0	30.4	Pitting 3-8" deep.
2.	35.2	16.6	10.4	25.6	Pitting 3-8" deep.
3.	52.0	17.4	8.9	13.2	Pitting 1-8" deep.
4.	41.4	24.6	4.2	18.4	More than 1-8" deep,
5.	49.2	18.4	9.1	17.8	and sulphur 1.1%, pitting $\frac{1}{4}$ ".

Master Plumber Would Confine Showrooms To Wholesalers

A prominent Montreal master plumber sets forth some interesting views concerning the subject of Showrooms for Plumbers as dealt with in recent issues of Sanitary Engineer. His letter on the subject is as follows:

"I am inclined to think that the supply man you refer to is very much one-sided, he evidently wants the plumber to advance only on labor to take care of his overhead and profit. This would never do, the plumber would be compelled to advance at least one hundred per cent. on labor to take care of his running expense.

"I claim that the manufacturers and supply houses are principally responsible for so many 'shoestring' plumbers in our cities and towns. They not only sell to the general public at plumbers' prices, and in some cases at lower than trade price, but some houses have a very bad habit of selling the fixtures and also finding a 'shoestring' to instal their goods for the customer.

"My opinion is that the supply house is the proper party to have the showroom, as they would have a much better display of goods than the average plumber, and as new ideas in fixtures would come into the market they would be displayed to advantage.

"The plumber or sanitary engineer should have a nice, comfortable office and reception room to receive his customers, and be exceptionally clean, but the private showroom as a rule is only a sort of makeshift and the same fixtures are displayed from year to year, at a very heavy expense.

"While I am recommending showrooms by supply houses, this must be done on business principles; each fixture must have its price marked in plain figures, and the salesman know no other price. It will not be necessary for the salesman to tell the customer that there is a discount of 25 per cent. to the plumber, also 2 per cent. cash discount. The plumber must live as well as the supply man, not in a fifty thousand dollar house and what goes with it, but in comfort. The plumber must have an advance on fixtures and material supplied by him or he will always be a 'shoestring.'

"It is a disgrace the way some supply houses conduct their business. They claim to be wholesale, but in many cases anyone can walk in their warehouses and buy two washers for five cents; some of them have clerks behind their counters with cash receipt books selling material the same as you see in retail dry goods stores, at the same time this firm has a turnover each year running into the millions.

"Now, then, Mr. Hairbreadth Wholesaler, it is up to you to make the 'shoestring' plumber stronger. I expect this will be the means of making all supply houses sell to the plumber only."

Heating and Ventilating

Relative Costs Of Warm Air Installations

Planning Modern Equipment at Minimum of Cost—Relative Costs of Installation on Three Different Bids for Installing a Warm Air Furnace—Best Planned Installation Is Cheapest in the End

MUCH has been written on the theoretical and technical side of warm air heating. A phase of the matter which does not receive frequent treatment is that of the relative costs of different methods of installing warm air furnaces. It is therefore of interest to reproduce herewith a paper recently presented at the American Society of Heating and Ventilating Engineers by an authority on the subject. It is as follows:—

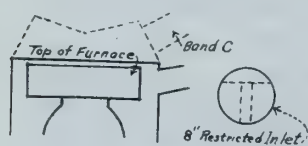


Fig. 1.

Planning modern equipment at minimum costs sounds easy and everyone has probably had experience in it. One will, no doubt, claim that he plans the modern part and that the "other fellow" attends to the minimum cost. I am not, however, convinced that this is true in the modern heating equipment supplied in residences. I am much more familiar with warm air details than with hot water and steam, but I know enough about the latter to be certain that every person engaged in residence work can parallel in either water or steam the things I shall try to cover by using warm air as an illustration.

In order to establish a common starting point to define modern heating I recognize the fact that in the larger towns most building is done by Realtors. Their interest in the heating equipment of such houses is nearer that of the user than some of the earlier builders who only wanted to know the installer's price and the finish on the registers. These Realtors build houses fit for any luxury lover to live and low enough in cost for a high-grade mechanic to own.

I intend to assume proper size and proportion of the heating plant and give special attention to the final minimum cost. A very simple house will serve the purpose. Assuming that a Realtor is building three of them, each

having the same heat requirements, and that the architect's plans call for a furnace just about large enough, a 12 inch run to the parlor, 10 inches to the dining room, 9 inches to the largest bedroom, and 8 inches to the other four rooms. This makes a total outgo from the furnace of 453 square inches of pipe area. He also plans to take the air supply from one of the rooms under windows through an oak grill 20 x 50 inches connected to the furnace with a galvanized pipe 24 inches in diameter; its area is practically 453 square inches. One will admit that the architect has planned a good heating equipment for a house sold under competitive conditions.

Three Different Bids

The Realtor has three different bids and decides to give a contract to each of the three, A, B, and C, thus giving us an opportunity to follow the plans further.

A cases his furnace as shown by the solid lines in Fig. 1.

Notice that the top of the casing is so low that the air cannot get into the pipe from the top, nor can it fill the pipe from the sides. About 80 per cent. of the pipe area gets into the pipe. By this method he allows 362 square

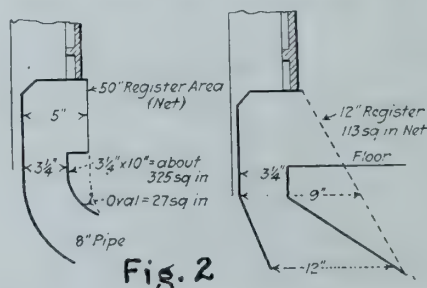


Fig. 2.

Figure 2. Showing Register Boxes With Narrow Throats.

inches of air to pass into the pipes (453 sq. in. x 80 per cent. = 362 sq. inches). B and C use a canopy as shown by the dotted lines in Fig. 1 high enough to allow the full amount 453 sq. inches to reach the pipes. By this method of construction A saves \$1.50 in material and labor.

A also uses registers and register boxes that have narrow throats as shown in Fig. 2 and also flattens or ovals the round warm-air pipe and pushes it into the already restricted register box bottom.

The studding is 3 3/4" wide. A could have utilized the space occupied by plaster and baseboard, but did not, he utilized only 3 3/4" instead of 5 inches in the small register and 9 1/2" in the 12 inch register.

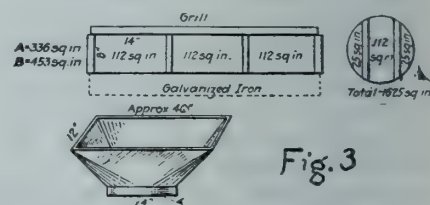


Figure 3. Showing Duct Connections.

A delivers 210 sq. inches to register and saves \$4.63 on fittings and \$1.50 on registers.

B uses narrow throats, but uses properly shaped connections instead of ovals. He also buys a register for the 12 inch pipe of proper catalogue dimensions except that the throat has less area than the 12 inch pipe. He delivers 267 sq. inches and saves \$1.50 in fittings and 75 cents on register.

C uses a full size connection in every case. With the 12 inch pipe he uses a register that projects about 4 3/4 inches out into the floor, and passes 113 square inches to this register. His total delivery through register is 453 square inches.

The air supply as planned is through an oak grill 20 inches by 50 inches under dining room windows.

The floor joists are 14 inches apart and 8 inches dep. The grill is 50 inches long so three spaces 8 inches by 12 inches are available for use as a return. A nails galvanized iron on the bottom of the joists and uses a 24 inch round duct (area 453 square inches), connecting it directly into the galvanized iron bottom of the grill as shown in the sketches in Figure 3. B, however, builds

a pan down 3 inches below the joists and allows 453 square inches to pass to the 24 inch duct, but he connects the 24 inch pipe directly into the bottom of the pan.

As air flows into a duct like water over a dam, he adds only 110 sq. inches of air actually flowing into the duct or a total of 272 square inches.

C does one of three things. He builds a pan 6 inches deep instead of three inches under the joists or if head room is important he makes the pan 3 inches

Table 1. Relative Costs of Different Methods of Installation.

A		B		C	
Sq. In.	Saved	Sq. In.	Saved	Sq. In.	Saved
362	\$1.50	453	.....	453	
210.....	1.50	267.....	\$1.50	453	
	4.63		.75		
162	4.00	272	2.00	453	
162	15.88	267	6.75	453	
Base		Bid		Price	
A	\$275.00		\$233.21	Sq. in. del. at .667	Value per
				162	sq. in.
				\$1.42	\$108.05
B	275.00		268.25	267	1.04
				453	.667
C	275.00		302.50		
C—\$302.50 plus 7 tons @ \$12—\$ 84 —					
A—233.21 plus 15 tons @ 12—180 —					

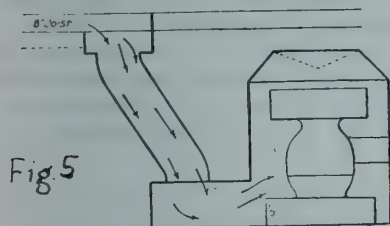


Figure 4. Showing Air Intake of Furnace.

deep as B did but at the end near the furnace he builds a portion of the pan 6 inches or 8 inches deep so the full volume of air passes into the 24 inch pipe; or else he makes an oblong transition piece that reaches across most of the 48 inch pan and terminates in the 24 in. pipe. He gets 435 square inches of air into the duct. A saves \$4.00; B saves \$2.00.

It is still necessary, however, to pass the air on into the furnace casing. A extended his pan to a point near the furnace and dropped down alongside of and close to the furnace, as shown in Figure 4.

The basement is 84 inches deep. He made the shoe at furnace 20 inches wide and 24 inches high so that two joints of pipe each 30 inches long will reach to the pan and make up the required 84 inches. He saved \$4.25. B does the same except that he makes his shoe 24 inches wide and 20 inches high. He saved \$2.50.



Furnace 5. Another Method of Air Intake.

The ash pit is 14 inches deep, so C made the shoe 14 inches high and 36 inches wide, and also started farther back and used elbows so that the flow of air is unaffected by the heat from the pot (see sketch in Figure 5). Note that C admits the air around the cool ash pit; whereas A and B admit much of the air against the hot pot. This results in decreasing the air flow as indicated by the arrows.

Compares C With A

It is apparent that C has planned carefully and conscientiously to deliver into the rooms a very large portion

of the heat created by the furnace, and possibly it is interesting to know how such planning compares in cost with the incompetent bungling done by A.

The things mentioned are in reality only a small portion of the thing left undone by A, but we must overlook the balance and hurry on. We can not even discuss the vapor pan A saved by leaving out.

C finds that the market price of labor and material on the job is \$275.00. C belongs to some sort of civic organization; he also belongs to a lodge or a church, and such things cost a little extra money. He has determined that his son shall have more than a primary education, and that costs some money.

He has telephone and other bills, so he adds 10 per cent., or \$27.50, making his price \$302.50. He delivered the full

453 square inches of air. It may therefore be said that the cost of C's well-planned job is \$6.67 per square inches of delivery; but we are not yet certain that this is the minimum cost. B saved \$6.75 in material. He adds nothing for the future or for expenses, so his price is \$275.00 minus \$6.75, or \$268.25. He delivers 267 square inches of air, and the job costs \$1.04 per square inch. But 267 inches at \$6.67, or C's cost, would only equal \$178.09.

A saved \$15.88 (beside the water pan and other sundries) which should have made his cost \$259.12. But he has a boy who has quit the grade schools, a mighty good worker, and he does not have to pay a high priced man to do his work, so he deducts 10 per cent., making his price \$233.21. As he delivers (Continued on page 34)

Prices On All Gift Suggestions



In showing a window of bathroom accessories as Christmas gift suggestions, such as is evident in this display by Ecclestone and Bates, Ltd., Bracebridge, Ont., it is always highly advisable to show prices. Xmas shoppers want to know the most practical gift they can secure for the money they have in mind to spend. The contractor's window of plumbing and heating equipment can do most good by effectively reaching such prospects and giving them the information required.

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Becoming A Merchant

THE CHRISTMAS season offers the plumbing and heating contractor a valuable opportunity to develop his merchandising ability and develop some profitable business from the sale of plumbing and heating equipment as Christmas gifts. It requires no stretch of the imagination to see that plumbing and heating equipment and the smaller accessories, are lines which add real value to the home and which, therefore, constitute gifts of the real practical character which are desired in times like the present.

The Christmas season has generally been looked upon as the dull season in the plumbing and heating industry, but with some application of merchandising principles this can quickly be changed until the Christmas season becomes one of active movement. In order to conduct this branch of trade on a merchandising basis it is necessary to adopt merchandising principles and take advantage of every current development. Therefore in connection with Christmas trade it would be wise to use the windows and store displays to best advantage in conjunction with local advertising. A letter might be sent to prospects dealing with their particular needs.

This plan can be applied alike to other seasons of the year, but the point which it is desired to emphasize is that an increased turnover of plumbing and heating equipment and a higher appreciation of the practical value of such equipment on the part of the public will follow only upon the application of those merchandising principles which have been employed with good success in other branches of trade. Certain of these plans are outlined in this issue of Sanitary Engineer as applied to Christmas business, and in every issue appear suggestions for windows and store displays, advertisements, letters for mailing lists. The reader who is really anxious to become a merchant should not merely glance over these articles and think they mean nothing to him, but should study them thoroughly and apply what is best for this particular business. The Christmas season is a good one in which to make a start by encouraging your prospects to look upon your equipment and accessories as suitable articles to be given as Christmas gifts.

* * * *

The Election

MUCH INTEREST has been taken in the Federal election by merchants and others, and it is to be expected that now with the contest settled, business will be rid of one element which has been acting as a brake upon business. No political party is blamed for this condition, but it is a well known fact that the detraction of interest from normal pursuits and the uncertainty which immediately precedes a general election tends to restrain normal business activity.

It will be interesting to see what the incoming Government will do with various items of irritating legislation now on the statutes. The defeat of the administration redoubles the chances of some change being made in the Marking Act which is now scheduled to go into effect on December 31. The tariff question will no doubt be dealt with but it is the general opinion that despite much wild pre-election talk, no action of a drastic nature and which might have serious effect on business, is likely to be taken. This department will likely be under the control of Hon. W. S. Fielding.

In any case the election has served to clear the air and as result a healthy volume of Christmas trade should be enjoyed and a stimulus given business for 1922.

* * * *

The Marking of Imports

THE DATE for the enforcement of the Canadian Customs regulations governing the marking of country of origin on imports, namely January 1, 1922, is drawing near, and recent alterations indicate that the Government is taking action to render the provisions less onerous rather than to further postpone them as many business men have expected. While the marking regulations have come in for considerable abuse, this has been directed more at the severity of certain regulations rather than at the principle of having marks on all imports in order that the Canadian buyer may identify the country of origin on his purchases of imports. As a matter of fact the Canadian law is very similar to the general marking act of the United States which has been in effect for many years. Such Acts are also enforced by other countries and must be observed by Canadian exporters. In principle the legislation has some advantages but there are still many provisions which will cause hardship.

Careful note should be taken of the revised regulations as outlined in this issue. It will be noted that goods ordered prior to October 1, 1921, and imported prior to July 1, 1922, will not be penalized to the extent of the 10 per cent. ad valorem duty if not marked according to the regulations, but such goods will not be released from Customs until they have been marked as required. It is quite evident that importers would be unable to mark many of these imports in as permanent a way as would be done in process of manufacture, and it is likely that the regulations will not be severely enforced on imports until manufacturers have had an opportunity to establish the proper facilities for marking their product according to the regulations. A study of the various provisions, as specifically applied to various items of hardware, is interesting to the trade and will be helpful to manufacturers so affected. These will be found in detail elsewhere in this issue.

While it appears that the marking regulation is to be enforced on the date set, it is possible that events following the general election may be such as to make some radical changes regarding this regulation.

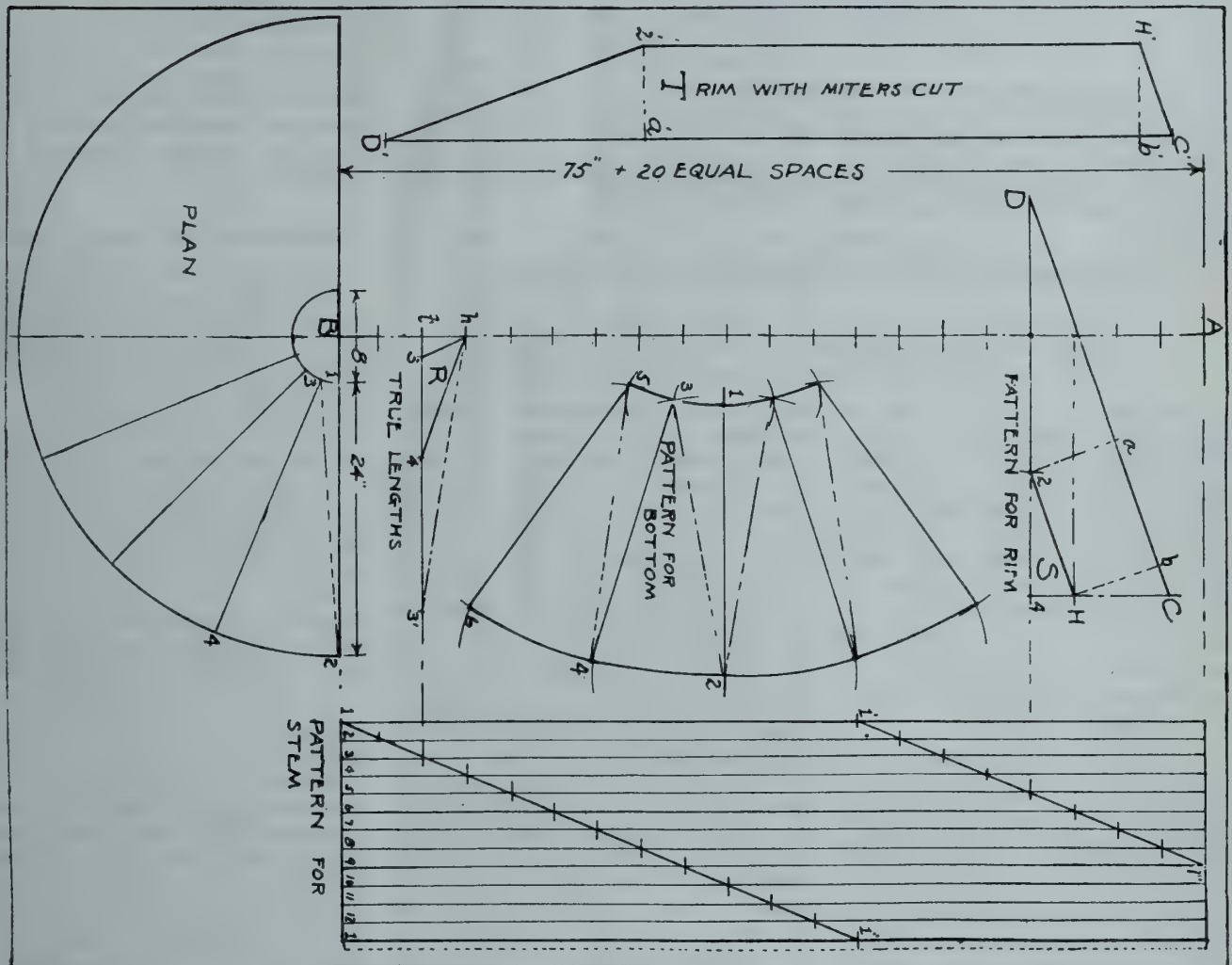
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Briefs

AT the general meeting of the Canadian Credit Men's Trust Association held in Toronto, W. E. Coulter, Booth-Coulter Brass Co., Toronto, representing the Ontario Board, C. M.A., stated that manufacturers in general were now operating at about 60 per cent. of normal. Replying to a questionnaire, five hundred and three manufacturers in Ontario had stated that present inventories were priced at present replacement values. It was the opinion that from this statement credit men should not be too much concerned when statements of firms showed reduced inventories.

Patterns For Spiral Conveyor

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri:
Written for Sanitary Engineer.



A subscriber asks for a spiral conveyor whose stem is 8 inches in diameter and the conveyor 24 inches wide, having $1\frac{1}{4}$ turn in 75 inches of rise. The enclosed drawing will show the layout.

First, describe the plan from a horizontal line making the stem the 8 inches and the width of conveyor 24 inches, and describe the semi-circles.

Divide the larger semi-circle in any number of equal spaces, of which there are 8 in this case, 4 being in each quarter circle.

Observe that in $1\frac{1}{4}$ turns of spiral, we would have 20 spaces; 16 spaces to make a complete turn and 4 extra for the quarter turn gives us 20 spaces.

Now from the center B, erect a center line as B-A equal to the 75 inches. Divide this distance in 20 equal spaces as shown. Observe that each space in plan raises one of these spaces in center line.

An outline of spiral is not necessary in a working drawing since it is only the rise per space that we wish. So let h-t be the rise of each space.

As the heel raises the distance of h-t in the length of 2-4 in plan, so we pick this line to 2-4 and set as t-4 in diagram R.

Next pick the space 1-3 from plan and set as t-3 in diagram. Now these lines h-4 and h-3 are girth lines for the edge of spiral and also can be used for the rim and stem.

Also pick the dotted line 2-3 from plan and set as t-3' in R. Then h-3' is the true length of this line in plan.

The solid lines of plan as 1-2; 3-4, etc., are true lengths, since the bottom must remain level.

To lay out the bottom draw any line as 1-2 equal to 1-2 of plan and then pick the girth h-4 and using 2 in pattern as center, strike arcs in point 4.

Then pick the girth line h-3 from R and using 1 in pattern as center, strike small arc as at 3. Then pick true length h-3' and using 2 in pattern as center, cross arcs in point 3.

Repeat this for the next space 3-5 and 4-6 and you have about as much of the pattern for bottom as you can handle in one piece.

This bottom is made in small pieces between 2 and 3 feet in length, because certain places of it must be stretched or hammered in order to make it level. This is something you will have to experiment with as you assemble the work.

To lay out the spiral on the stem so it will be in the flat, pick the girth from half plan as 1-3, etc., and set it as 1-1 in pattern for stem.

Square up lines indefinitely and then from each point in the elevation line A-B bring over points to cross these stretchout lines.

The intersections enable you to trace the spiral lines as 1-1' and 1'-9". As the stem is only 75 inches high this can be nicely laid off on a sheet of iron as shown.

To enable drawing the lines parallel the girth spaces 1-2-3-4, etc., are set off on the top as well as the bottom so as to have two definite points to apply the straight edge.

Instead of projecting the lines the eights can be picked from B of plan with dividers or trammel points; or with picking one point and setting it off on

the next line, thus graduating each line and each point, which will give you the same results.

To lay out the pattern for the rim on the outer edge of conveyor, drawing the diagram as at S.

Pick the girth 2-4 from plan and set it as 2-4 in S. H-4 is equal to the rise of one space and this gives the slant line H-2.

Parallel with this line H-2 draw the line C-D, making it to suit the height this rim is to have. This can be done by measuring 2-a and H-b and then drawing lines through these points.

By extending the right angle lines

we produce the miters, especially for the bottom as G-2-a. This would be laid off on a long strip as in pattern T as 2'-a'-D'.

The upper miter cut on the top floor would be the same and cross seams for joining 2 or more strips could be just right angle joints as H-b.

It is not necessary to make the miter H-C because that is for a vertical butt joint.

Laps for riveting must be allowed extra on all patterns, and it is well to make up a small sample before working the big size in order to see how your lines work out.

"Show your customers that by paying cash, and getting a cash discount, they are getting what belongs to them; and they are not helping to pay for goods which the deadbeat walked away with. The plumber who decides that he should change his methods, and encourage the cash buyer, should work out the details in his own way. Of one thing you may be sure, a business will never grow and be really profitable to the owner, as long as he has to borrow money to take the place of money outstanding on open accounts."

SCARBORO TO INSTAL SEWERS

Scarboro Township Council has instructed the engineering firm of James Redfern and Proctor to prepare estimates of the cost of installing a sewerage system in the southern section of the township.

INSTAL MAINS IN ST. JOHN

St. John, N.B.—Commissioner Jones has presented a report from Engineer Hare as to an approximate cost of installing a thirty-six-inch main from the One-Mile House to Little River by diverting it around Fernhill. He said that to instal an iron pipe would cost approximately \$576,600 providing the work was done in favorable weather. The same line made of reinforced concrete capable of withstanding a heavy head would cost approximately \$474,000, a difference of \$102,600. From Little River to Uhinney's Hill and using 2,200 feet of cast iron pipe now on hand, the cost in round figures, he said, would be \$191,500. To parallel the wood stave main with reinforced concrete, the pipe would cost in summer weather \$157,200, plus the cost of laying the 2,200 feet. If in winter it would cost \$2 more a lineal foot.

Mayor Schofield and Commissioners Frink and Bullock agreed that a new main was needed right through to Lock Lomond, and favored the commissioner of water and sewerage bringing in a report in the form of a final plan. It was suggested that the work could then be done in stages.

DEFECTIVE WATER PIPE CAUSES ENORMOUS WATER WASTE

Montreal.—By repairing the defective pipe system in St. Michel de Laval, the water supplied by the city to this municipality, as shown by the meters, has been reduced from 190,000 gallons a day to 102,000 gallons. The Superintendent of the Water Department stated the system was found in a very bad condition, as most of the joints examined allowed water to escape, due to the fact that these joints had not been calked. A ten inch pipe also had been found broken.

Getting Cash for Plumbing Business

Is the Money You Are Earning Staying in the Pockets of Your Customers?—Here Is a Plan Which One Plumber Used to Improve Collections

HOW CAN I get cash?" is the cry of many a plumber today. Farmers have extended their credit on account of the low price of farm stuffs. The result is many dealers are carrying accounts on their books ranging from \$200 to \$700 and books show collections in 1921 are 10 per cent, to 15 per cent. lower than in 1919.

Yes, sir! Ready cash is mighty hard to lay hands on these days.

Here is how one dealer met the problem. He writes:

How One Dealer Did it

"For seven years I watched my business grow on the books. But the cash drawer and the bank balance didn't seem to grow. My banker always watched my account and it was hard for me to get credit. And yet I was giving long time credits to all of my customers.

"It took me seven years to realize that the money I was earning by increasing my business was mostly in the pockets of my customers instead of in my own. I finally woke up to the fact that a balance on the books didn't mean anything. It was a balance in the bank that counted.

"I made a complete change in my business methods. Today, three-fourths of my business is strictly cash, and except in rare instances the other fourth of my trade pays up every thirty days.

Here's The Scheme

"Liberal credit had always been my policy and I couldn't revolutionize things in a minute by insisting that customers pay cash. So I offered 5 per cent. discount for cash on all purchases amounting to one dollar or more. I offered a discount of 2 per cent. on all bills which were paid on or before the 10th of the month following purchase.

"On my statements and bills I had this notice printed:

"When we borrow money from the

bank we have to pay interest. When we sell goods to you on credit it is the same as loaning you that much money. We are extending this accommodation with the understanding that you will pay promptly. If you do not pay by the tenth of the month we will charge you interest at the rate of 6 per cent.

"It wasn't long before my customers began to realize that the 5 per cent. discount for cash meant a real saving to them. To make this clear, I instructed my staff to count out the discount separately from the charge. As an example, suppose a customer made a purchase amounting to \$3.80 and gave the clerk a \$5.00 bill. The clerk says, 'Here is your change', handing the customer \$1.20. At the same time he says, 'And here is your cash discount, 5 per cent. on \$3.80,' handing the customer 19 cents. In this way, people recognize the saving in paying cash. As I said before, three-fourths of my trade is now strictly cash. They like to pay cash.

Charging for Credit Brings Cash.

"Charging interest on unpaid bills is a wonderful stimulant toward prompt payment. This plan has driven the 'slow pays' away from my store but it brought more than enough 'prompt pays' to take their places.

How I Profited

"Last year my total business amounted to \$73,640, which was a splendid increase over any preceding year. I paid out \$2,500 in discounts. At first thought it might appear that these discounts would make a big hole in my net profits. But not so. I didn't have to borrow money and pay interest.

Today I Am Independent

"Best of all, I know exactly where I stand. For seven years I was hard up for cash. To-day I am under obligation to no one.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights
—Keep the Entire Series Where It May Be Referred to and Studied

Article No. 44 of Series; Illustrations Nos. 51, 52, 53

(Continued from last issue)

FIG. 51 illustrates the side view of the pump house showing the entrance staircase in brickwork Fig. 52 and the ventilation and lighting system through the windows and door.

Fig. 53 shows the method of building in the galvanized W. I. iron steps and size and detail construction of the screen placed at an angle of 45 degrees supported on the concrete bottom and 6in. x 3in. steel channel iron which serves as a receiver for the floating matter taken off the screens by the rakes.

All pumping plants should be preceded with a grit and screening chamber, otherwise the mineral solid and floating matter will damage the vanes in the pump.

The plunger or force pump is a good style of pump to install where the lift is great or where continuous working is required and consists of a cylinder or working barrel in which the plunger or piston works up and down through the stuffing box or gland. The plunger is either hollow or of solid metal, accord-

This pump works either horizontally or vertically and its action is as follows: In the up-stroke of the plunger a vacuum is created which allows the water to enter through the suction pipe into the working barrel and body of the pump, filling the space left by the plunger. The water is retained by a cock or valve at the top of the suction pump and is again forced by the down-stroke of the plunger through the delivery pipe, being retained by the delivery valve, and rises at each successive stroke until it reaches the point of discharge. Unless an air vessel is fixed on the main during the up-stroke of the plunger, the forward motion of the water through the delivery pipe would cease and the discharge would therefore become intermittent instead of continuous; the air being compressed during the descent of this piston or plunger re-acts and forces the water through the delivery main during the up-stroke. This prevents shock to the working parts and the same time economizes the power of the engine by keeping the water in constant motion.



Fig 51.

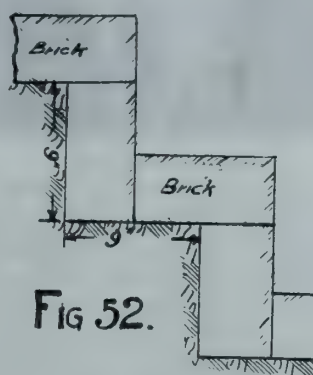


Fig 52.

ing to the conditions required, and may consist of one or more plungers each working in its own barrel. The barrel should be of brass or bronze but is usually, for cheapness, made of cast iron connected at one end with the delivery pipe with valve box at the other end.

The suction and delivery pipe should be of ample size, as straight as possible and perfectly air tight. Wrought Iron pipes are preferable and if bends are necessary they should be of as large a radius as possible. In cases of long suction pipes or heavy lifts, foot or retaining valves should be fitted, in fact it is better to fit them in all cases as they

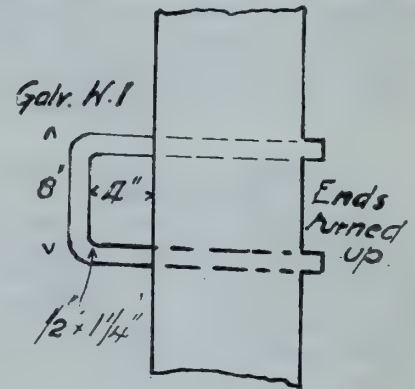


Fig 53.

keep the pump charged with water. The diameter of delivery pipes should be uniform whether they are long or short. A check valve should be placed on the delivery pipe to relieve the pump from back pressure when starting or when taken apart for adjustment or repairs.

If the delivery pipe is very long the diameter of same should be increased in proportion to allow for increased water friction, but bends and angles increase the friction more rapidly than the length of pipe. All joints should preferably be flanged, well faced and the holes drilled to template as, unless the joints are well and carefully made, leakages are very liable to occur especially with heavy pressures.

Spigot and socket joints are used with success on pumping mains, but if great pressure has to be withstood, the flange joints are the best.

Toronto—Chas. Lennox, 35 Patricia Drive, is building I pair stores and apts. costing \$12,000 for Sarah J. Lennox, 35 Patricia Drive. Plumbing and heating contracts are placed with L. J. Harris, 42 Keystone Ave.

Walkerville, Ont.—Additional contracts for bank and apts. costing \$41,700 for Royal Bank of Canada, 147 St. James St. Montreal, are: plumbing and heating, Windsor Plumbing & Heating Co., 518 Pitt St. W., Windsor.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

GET BIG HEATING CONTRACT

Woodstock, Ont. — Messrs. Sheehy Brothers, local sheet metal workers, announced that they have just been awarded a fine big contract in their particular one. This is for the supplying and installing of the complete heating system in the new addition to the paper plant of the Abitibi Power and Paper Co., at Iroquois Falls, Ont.

CONSUMERS GAS OPENS NEW SHOWROOMS

Toronto.—The Consumers' Gas Co. has opened a spacious new showroom at 55 Adelaide St., E. The room occupies the entire main floor of a building entirely remodeled and to which one floor has been added. All up-to-date gas appliances are being shown.

WESTERN ONTARIO NEWS

W. J. Green, 488 Egerton St., London, Ont., has been awarded contract for hot air heating and plumbing in connection with new \$4,500 house for A. Hambleton.

W. H. Heard, St. George St., St. Thomas, Ont., contemplates building new three storey summer hotel at Port Bruce and is interested in prices of bath room and plumbing equipment.

William Stevely & Son, 197 King St., London, have been awarded heating contract for two new dwellings costing \$9,900 being erected by Gordon Waide. Plumbing work to be awarded shortly.

John Hartsell of Norwich, Ont., is preparing plans for new \$4,000 residence and wants prices on heating, plumbing and electrical equipment.

H. H. Martinson of Cottam, Ont., was awarded the contract for new hot air heating system for the Baptist Church.

Plans are being prepared at London, Ont., and work will start in the spring on new buildings for the Western University to cost \$2,000,000. Steam heating system is planned. Col. W. J. Brown, Western University, London, will look after all plans.

Alex. White, sanitary engineer, Windsor, Ont., has moved to 824 London St., West, and in the new location plans to handle metal work as well as plumbing and heating contracts.

John Walsh of Kingsville, Ont., is preparing plans for new \$4,000 residence and wants prices on plumbing, hot air heating and electrical work.

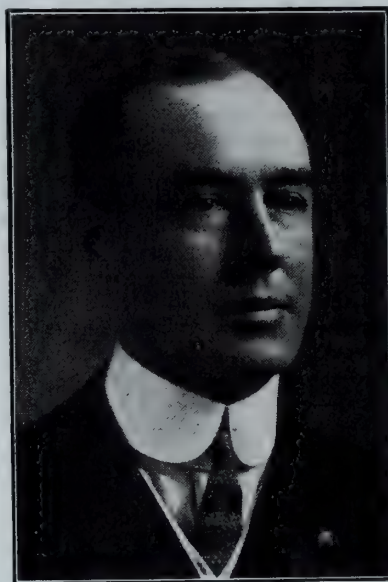
Thomas Copp, 51 Wortley Road, London, Ont., is preparing plans for three

new residences to cost \$12,000 and wants prices on hot air heating, plumbing and electrical equipment.

Plans are being prepared and work will commence at Petrolea in the spring on a new reservoir for storage purposes. The Water Commissioners also plan the installation of electrical pumps. The improvements will cost \$42,000.

Alex. Milne, 176 Wharncliffe Road, London, has been awarded contract for plumbing and heating for new \$4000 residence for D. S. Murray.

In the recent municipal election at London, has been awarded contract for the Board of Education last year missed being returned by a narrow margin.



W. R. STAVERT

For the past twenty-one years associated with Jenkins Bros., Montreal, latterly as sales manager, who, as outlined in last issue of Sanitary Engineer, has severed his connection with that company and taken over the agency for the Kerr Engine Co., Walkerville, manufacturers of valves, sprinkler equipment, etc., which he will represent in district east of Hamilton including Quebec Province.

R. McAllister of Comber has entered into partnership in the business of J. C. Mann at Essex, Ont.

Claud Chapman of Amherstburg, Ont., was awarded contract for installing steam heating system in the Central garage.

James Sandford, 613 Oxford St., London, wants prices on heating, plumbing and electrical work for new \$8000 duplex on which work has been started.

James Telfer, St. Pauls, Ont., is pre-

paring plans for new \$4000 residence and wants prices on heating and plumbing.

Williams and Roberts, of London, Ont., have opened a down town shop and showroom at the corner of Ridout and King street. In the front part of the premises an attractive display of plumbing goods, baths, toilets, etc., has been arranged.

J. M. Totten, 14 Brighton St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new \$4500 residence.

A. E. White, 174 Langarth St., has commenced work on new residence to cost \$4000 and wants prices on hot air heating, plumbing and electrical work.

E. W. Moore, 370 Ontario St., London, wants prices on hot air heating, plumbing and electric work for new \$3800 residence.

A. J. Kernehan, 436 Quebec St., London, has commenced work on new residence to cost \$4000 and wants prices on hot air heating, plumbing, and electrical work.

PETERBORO AGREES TO PROVINCIAL DEMANDS

Peterboro, Ont.—The following resolution has been carried by City Council:

"That this Council, having been ordered by the Provincial Board of Health to construct sewage disposal works of the activated sludge type, direct the City Engineer to complete the details of the plans and specifications for disposal works of that system in consultation with the Provincial Engineer as quickly as they can be prepared, and that the Committee of the whole Council be directed to advertise for the construction of the works as soon as plans are completed."

PETERBORO SAVES MONEY ON WATER MAINS

Peterboro, Ont.—That a saving of over \$15,000 has been made by the Utilities Commission in laying the mains of the filtration plant themselves was revealed at a meeting of the Utilities Commission. The waterworks department estimated that the work would cost \$31,126, using ten-inch pipes. As a matter of fact, work has cost only \$23,586.86. Six-inch pipes were laid but even had the original design been carried out they would have been \$5,000 within their estimate, according to the Commission.

FIRST TOWNSHIP WATERWORKS

Scarboro, Ont., waterworks system, a project involving an expenditure of \$50,000 has been formally opened at a dinner in the filtration plant. Four hundred and fifty buildings are affected, largely private dwellings.

Water is obtained by means of a 24-inch steel intake pipe extending 2,500 feet out into the lake.

The new Scarboro system is stated to be the only waterworks system controlled by a township in all details, including supply works. York township, which is also provided with water privileges buys its water from the city of Toronto.

The filtration system used, which is called the mechanical gravity filter, differs from that used by the city of Toronto on Toronto Island. The water is first treated with alum and then allowed to settle for two hours. Gravity takes it through the filter beds composed of 30 inches of graded quartz and 18 inches of graded gravel. From there the water is collected in a reservoir. When the filter sand becomes dirty, the flow of water is reversed and the sand mechanically washed.

NEW ESTIMATES \$110,000

Port Credit, Ont.—A by-law calling for the construction of a waterworks system for the town to cost \$60,000 was passed by council. The ratepayers will vote upon this at the municipal elections. The distributing system will cost \$50,000 more and will be a separate undertaking to be dealt with under the local improvement act. The new plan means a saving of \$30,000 as the last estimates called for an expenditure of \$140,000.

INSTAL PUMP ON FURNACE

Kingston, Ont.—The County Council, has adopted the recommendation of the Property Committee to instal a motor pump at the west end furnace in the Court House for the purpose of improving the heating facilities of the building. The cost will be \$535 with an economizer, and the work will be done by Elliott Brothers.

CHATHAM INVESTIGATES SWIMMING POOLS

Chatham, Ont.—The chamber of commerce has appointed a special committee to conduct an investigation into the advisability of having a swimming pool constructed in the city. The committee will hold weekly meetings until they have something definite to hand to the public. The committee is composed of Richard Knight, chairman, Clarence Merriitt, C. A. Glock, James Ost, City Engineer, C. H. R. Fuller and Major P. K. Morley. Acting Manager W. R. Landon of the chamber of commerce is collecting data for the committee.

Contracts Awarded

CONTRACTS AWARDED

Toronto.—Byrne Bros., have plumbing contract of \$535 for new rooms at St. Bridgid's School.

Toronto.—Plumbing and heating contracts valued at \$41,979 in connection with North Toronto High School extension have been awarded to Mechanical Trades, Ltd.

London, Ont.—Additional contracts for residence costing \$9,000 for Harry Langford, 361 Talbot St., are: plumbing and heating, Wright Teale Co., 60 Dundas St.

Moncton, N. B.—Plumbing contracts for 4 tenements costing \$12,000 for A. Fownes, Union St., are awarded to T. Johnson & Co., Ltd., 895 Main St.

Montreal.—Plumbing and heating contracts for cottage costing \$14,500 for E. Vadeboncoeur, St. Catherine St., are awarded to Conroy Bros.

Montreal.—Plumbing, heating and roofing contracts for 2 residences costing \$16,000 for Manseau & Beaulieu, 375 Westhill St., are awarded to McAuley & Tucker, 7 Calumet Ave.

General contract for erection of 20 residences at cost of \$120,000 for Rockland Housing Co., Room 304, Bank of Nov Scotia Bldg., is placed with L. A. Ott & Co., 10 Cathcart St. Additional contracts are: Plumbing and heating, White & Delaney, 51 City Councillors St.

Ottawa, Ont.—Additional contracts for residence costing \$6,200 for Thos. Switzer, Eussel P. O., are: plumbing and heating. Gervin & Hodgins, Bank and Sunnyside.

Ottawa, Ont.—Additional contracts for residence costing \$9,000 for W. H. Lee, 60 Glen Ave., are: plumbing and heating, Gervin & Hodgins, Bank and Sunnyside; heating, Capital Hardware Co., 845 Bank St.

A. J. Williams, 172 Glenora Ave., is awarded plumbing contract for residence costing \$7,000 for Leday McFarland, Ltd., Bank St.

Ottawa, Ont.—Plumbing and heating contracts for residence costing \$7,000 for Miss Duhamel, care of Millson & Burgess, architects, 293 Sparks St., Ottawa, are awarded to Gervin & Hodgins, Bank and Sunnyside, Ottawa.

Toronto.—Additional contracts for residence costing \$16,000 for Dr. J. F.

Ross, 124 Castle Frank Rd., are: plumbing and heating, McNaughton & McKenzie, 1029 Shaw St.

Toronto.—Additional contracts for residence and garage costing \$17,000 for E. M. Hoare, 35 Roxboro' Drive, are plumbing and heating, John Fraser, 443 Danforth Ave.

Toronto.—Plumbing and heating contracts for residence costing \$15,000 for Mrs. Sutherland, care of Page & Warrington, architects, 199 Yonge St., are awarded to B. J. Miller & Co., 550 Bathurst St.

Toronto.—B. J. Miller & Co., 550 Bathurst St., have plumbing and heating contracts for residence costing \$15,000 for Mrs. Sprague, care of Page & Warrington, architects, 199 Yonge St.

Toronto.—Plumbing and heating contracts for 3 bungalows costing \$8,500 each for Brook Sykes, 7 Boon Ave., are awarded to John Sheard, 80 Westmount Ave.

Toronto.—Plumbing, heating and electrical contracts for residence costing \$8,000 for W. Law, 56 Innis Ave., are recorded to R. J. Ritchie, 851 Logan Ave.

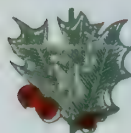
Toronto.—A. Shanks, 1 Edith Ave., has plumbing contract for residence costing \$7,500 for Sharpe & Huff, 1425½ Bloor st. W. Heating contract is placed with Howard Plumbing & Heating Co., 21 Howard avenue.

Toronto.—Contracts for residence costing \$35,000 on Poplar Plains Rd., are: plumbing and heating, Mechanical Trades, Ltd., 54 University Ave.

Toronto.—Additional contracts for 2 stores and apts. costing \$10,000 each for Leo. F. Bennett, 90 Glendale Ave., and E. T. Hart, 3 Watford Ave., are: Roofing and heating, A. J. Wise Heating & Plumbing Co., Ltd., Vaughan Rd.; plumbing, Scott & Morrison, care of general contractor, G. B. Robinson, 109 Geoffrey St.

Toronto.—Heating and plumbing contracts for store and apts. costing \$9,000 for A. Calderone, care of B. Swartz, architect, 336 Dundas St., are awarded to W. H. Miles & Co., 188 Dupont St. and Geo. Elliott, care of architect.

Montreal.—Additional contracts for warehouse costing \$11,000 for J. R. Choog & Sons, 28 Bonaventure St., are: plumbing, Jno. Tweedle & Co., 103 La-gauchetiere street.



Nothing is more essential to the progress of sanitary engineering — round; by the public to the trade; by the trade to the public — between plumbers — between jobbers — between manufacturer and trade; good-will and appreciation of services be

Good-will to the manufacturer. For he must shape the crude materials into the finished product. His methods must change with the times — his policies are formed to meet conditions. Only the quality of his products must remain unchanged. For if he would progress his aim must be to keep quality before price. Satisfactory service must precede immediate gain.



*More than
A Business*

Good

PORT
SANITARY
CO., L.

Port Hope, TO
M



Good-will to the jobber. For he performs, in place of the manufacturer, he relieves the plumber of carrying heavy stocks. He gives his assistance to the manufacturer in the distribution of his products.



engineering, than good-will. Good-will all public. Good will in the trade itself—between us; Good-will between different classes of the plumbers, wholesalers — and manufacturers.

ntiment
cessity

Will

PE
MFG.
TED

, Winnipeg

Good-will to the plumber. He is the key-link in the chain. For day after day he brings health and comfort to those he serves. His handiwork saves lives. Week after week he tells the story of better home sanitation. Often he must convince clients to install equipment against their previous judgment. His big difficulty is to make people do what he knows is best for their needs. Above all, good-will to the plumber.

day business, a necessary function. He re-
sponse ensures speed in delivery. He is of great
his wares.



Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

P RICE developments in plumbing and steam-fitting supplies are again both numerous and important. Lower quotations appear on enamelled ware through a revision in the discounts. There has also been another reduction in malleable fittings, both black and galvanized pound goods being quoted lower. Price recessions are noted on the J.M.T. line of brass valves, also the Jenkins gate, straightway and globe valves. Other declines recorded are on coke tin plates, and plumbers' oakum, while reduced base prices on galvanized and black sheets have been announced in some quarters. The prevalence of reported price shading on range boilers is now substantiated with the general recognition in certain markets of a new lower list, although no change has been made in the manufacturers' nominal quotations. The wide variation in discounts on soil pipe and fittings is

still apparent, no readjustment having been made.

Two advances have been recorded in solder quotations, these increases affecting the different grades in varying extent. Some higher prices are also noted on brass rods and sheets, this change reflecting the continued firmness in primary metal markets. Signs of improved activity in ingot circles have resulted in higher price levels on copper, tin, lead and spelter. On the other hand, aluminum records even further depression accompanied by another slight decline. There have been some reports of price shading on radiators, current trade in these products having receded in a marked degree. Business in such lines as corrugated sheets, eavestrough and piping, is of a quiet nature at this season of the year. Slight price gains are noted in non-ferrous scrap materials, copper grades leading this upward tendency. Only minor inquiries are evident for boiler tubes.

MONTREAL MARKETS

MONTREAL, December 14.—Many important lines of plumbing and steam-fitting supplies are now recorded with changed quotations. Enamelled ware furnishes the feature, when the discount on the various lines is now quoted at 33 1-3 per cent. off, former quotations being less 20 and 10 per cent. Manufacturers of these wares announced the reduction, effective December 12th. Closet outfits with different bowls are also reduced, although the standard outfit remains unchanged. This price decline, however, is not made through lower manufacturers' prices. Another important item in the line of reduced quotations is the new list on range boilers. The unstable condition of the local market on these for some time past has resulted in some jobbing houses issuing the lower quotations, while manufacturers maintain replacement costs have not been changed. Plumbers' oakum is now quoted at \$7.35 per 100 pounds, a slight reduction being made. Pipe fittings are slightly easier, with lower prices on pound goods appearing in some quarters, and a revision is made in Jenkins valves.

Solders register a price advance, all grades being now quoted higher. Traps and bends remain at former figures, but the undertone of the market is very firm. Copper and brass scrap metals are also increased in price due to the continued strength of copper in the metal markets. Other lines are remaining unchanged with business in jobbing circles showing a slight slackening owing to the advanced season and the approach of the holiday season.

ENAMELLED WARE NOW QUOTED LESS 33 1-3 OFF

Montreal.

A reduction is announced in the quotations on the various lines of enamelled ware, through revising the discount to 33 1-3 per cent. off list prices, former discount being 20 and 10 per cent. Manufacturers issued comparative lower prices, effective December 12th, and

distributors immediately revised their lists accordingly. These lower prices are welcomed by the trade, and it is thought they will have a settling effect on the unstable conditions that have been evident on the local market for some time. The revision comes at a season of the year when little can be expected in the way of a stimulus to increased business, but it is felt that more con-

fidence will now be displayed. Following are list prices with the new discount:

Sinks, roll rim—			
18 x 30			\$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	\$ 7 50	\$ 7 40	\$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to			
30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60
Less 33 1-3 per cent.			

LOWER PRICES ON JENKINS VALVES

Montreal

Through a change in discounts, many lines of Jenkins valves are now quoted at lower figures. Other lines are remaining unchanged at former discounts. Sorting orders of fair proportion are reported among jobbing circles, with the following revised quotations:

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	40%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Emco Globe Valves	20%
Emco check valves	20%
Jenkins Globe, angle, check and swing	
check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

PLUMBERS' OAKUM SLIGHTLY REDUCED

Montreal.

Slightly lower quotations are made on plumbers' oakum, and the local price is now \$7.35 per 100 pounds. Former quotation was \$7.50.

NEW LIST APPEARS ON RANGE BOILERS

Montreal

Distributors of range boilers are now using a new lower list of prices, although manufacturers state no general lowering has been announced. The 30 gallon boiler will now sell for \$8.75, with other sizes reduced accordingly. The condition of the market for some time past has been such that the new prices now given have been quoted in past weeks, through concessions made to obtain orders, but it was not thought that revision would be generally announced, considering replacement costs maintained by the manufacturers. It is hoped that a more staple condition will now prevail, although some express doubt as to this even with lower prices. Following is the new list quoted:

RANGE BOILERS—	Std.	Ex.	Heavy
30 gallon	8 75	11 25	
35 gallon	11 25	13 50	
40 gallon	13 50	16 00	
52 gallon	20 00	24 50	
66 gallon	28 00	34 00	
82 gallon	35 00	46 50	
100 gallon	45 00	55 00	
120 gallon	54 00	63 25	

SOLDERS ARE ADVANCED IN PRICE

Montreal.

Solders are now advanced in price one and one half cents per pound on all grades. Other lines, such as lead traps and bends are holding at unchanged figures for the present, but it would not be surprising if the firm tone in the market would result in a further development, covering these lines. Tin, lead and spelter each continue to show marked strength on the ingot markets with price advances made in each case recently. The tendency of lead products has been on the firm side for the past number of weeks, pending further strength in the primary sources, and it has been generally believed for the past few weeks that any price development would be in the nature of an advance. The buying movement is seasonably slow at present, with following prices now quoted:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 10¼
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 27¾
Do., strictly, lb.	0 25¾
Do., commercial, lb.	0 22¾
Do., wiping, lb.	0 23¾
Do., wire, lb.	0 37¼
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

SOME REVISIONS IN CLOSET OUTFITS

Montreal.

Accompanying the lower quotations in other lines of enamelled ware, are revisions made in some of the extra bowls in closet outfits, although the standard outfit remains unchanged. The wash-down, reversible trap and "Riche-lieu" bowls are each quoted at lower figures. Following are the revised net prices:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., "Riche-lieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

EASIER TONE IN PIPE FITTINGS

Montreal.

An easier tone has again developed in the market for pipe fittings, and is now pronounced in a slight reduction made in pound goods in some quarters. A reduction of one cent per lb. is announced by some jobbing houses, but owing to still lower quotations formerly existing in other quarters, prices quoted below are nominally unchanged. Other fittings are for the present unchanged, and following are prevailing discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	25
Bushings, cast	27½
Bushings, malleable	25
Flanges	37½
Plugs	27½
Flange unions	22½
Malleable unions	42½
Dart unions, black	33
Do., galvanized	13
Nipples, ½ to 4" close and short	50
Do., long	60
Do., 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10
Pound Goods—	Blk. Galv.
Class A	0 53 0 65
Class B	0 21½ 0 28¼
Class C	0 14 0 21½

BOILER TUBES NOW ON A DULL MARKET

Montreal.

The buying movement in boiler tubes is now seasonably slow, with prices remaining unchanged. The usual winter demand for repair work is anticipated, but little increased activity of a marked nature is expected until after the quiet months in the earlier part of the new year. Following are quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2½ inch	27 75	23 50
2¾ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

BAR IRON AND STEEL PRICES HOLD

Montreal.

The basic price of common bar iron remains at \$2.96 generally, but a quotation slightly less is given in one quarter. Although there would appear to be an easier tendency in the market, distributors state that there is little likelihood of a further change in a downward direction this year. The last revision, it is claimed, was made owing to local conditions, without any material change noted at the primary sources. One large local distributor stated to Sanitary Engineer that their warehouse was now practically bare, and would remain so until a more active demand was evident in the early months of the New Year. Undoubtedly stocks are in the same position in all parts, and with a slight indication of a firmer situation, the buying movement would commence. For this reason the trend for the New Year would seem of a steadier to firmer basis, with chances of a change in prices in an upward direction. Prevailing local quotations are as follows:

IRON & STEEL—

Common bar iron, 100 lbs.	2 90
Refined iron	4 40
Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	4 75
Band steel	2 90
Spring steel	4 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining teeth steel per lb.	0 22
Black Diamond tool and cast steel	0 22

NOTE—Refined iron is approximately \$1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

COTTON MARKET LITTLE CHANGED

Montreal.

The position in the cotton market shows little change in the past two weeks. The strength displayed some time ago has now subsided, with waste prices still remaining at former quotations. There is said to be every chance of a revision in the earlier weeks of the new year, and future developments will be watched with interest. Present quotations are as follows:

COTTON WASTE— Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLCR, 15c; X Empire, 14c; X Press, 13c; 6 X Special, 12c. Colored, Fancy, 14c; Lion, 12½c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 20c; colored cotton, 14c.

Above lines subject to trade discount for quantity.

SHEETS ARE NOW QUIETER

Montreal.

Nominal sheet quotations remain unchanged at the revision of two weeks ago, and little change is now expected until after the first of the year at least. The sheet market in general shows little activity at present, the usual December quietness everywhere evident. The call for Canada plate and galvanized iron, has not subsided with the advanced stage of furnace and stove pipe works.

Interest is commencing to be shown

in connection with any development that might take place with the opening of the New Year. It is generally conceded that more active demand will firm the situation, but the extent of increased business and the time that such is likely to take place is problematic at present. Undoubtedly mill prices compare well with present productive costs, and in this connection it is stated that the recent revision to lower levels on the local market was the result of current domestic conditions rather than any development at the sources of supply. Following are nominal prices:

BLACK SHEETS—

10 gauge	4 00	4 65
12 gauge	4 10	4 75
14 gauge	4 40	4 85
16 gauge	4 50	4 95
18-20 gauge	4 55	5 29
26 gauge	4 60	5 40
22-24 gauge	4 65	5 35
28 gauge	4 75	5 50

GALVANIZED SHEETS—

10½ ounce	6 75	7 75
28 gauge	6 3	7 35
26 gauge	6 05	7 00
22-24 gauge	5 90	6 75
20 gauge	5 75	6 60
18 gauge	5 75	6 50
16 gauge	5 60	6 50
14 gauge	5 45	6 50
12 gauge	30	6 50
10 gauge	5 30	6 50

English Standard—	Queen's Fleur-de-lis	Head	de-lis
28 gauge	8 25	7 75	
26 gauge	8 00	7 60	
24 gauge	7 40	7 10	
22 gauge	7 05	6 65	
18-20 gauge	6 35	5 20	

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10½ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.

18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.

18 x 24 x 52s	8 25
18 x 24 x 60s	8 50

BRIGHT TIN PLATES

20 x 28 x 100 lb. bases	17 50
20 x 28 IC, 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00

TERN EPLATES

20 x 28 IC, 112s	17 50
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LITTLE BUSINESS IN EAVES- TROUGH

Montreal.

The season for eavestrough and conductor pipe is now practically closed and with the holiday season now at hand, little will be done with regard to bookings for next year until next month. Prices are holding at revised discounts announced a few weeks ago. Following are list prices and discounts:

EAVESTROUGH—

O. G. Square Bead—Per 100 ft.				
8 inch	10 inch	12 inch	15 inch	18 inch
\$15 90	\$17 70	\$21 20	\$28 80	\$36 80
O. G. Round, and Half Round—Per 100 ft.				
8 inch	10 inch	12 inch	15 inch	18 inch
\$16 90	\$18 70	\$22 20	\$29 80	\$37 80
Discount 70 per cent. off list.				

Discount 70 per cent. off list.

CONDUCTOR PIPE—Per 100 ft.

2 inch	3 inch	4 inch	5 inch
\$18 40	\$22 30	\$29 60	\$40 00

Discount 70 per cent. off list.

CONDUCTOR ELBOWS—

Plain round or round corrugated.	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

NO CHANGE IN WROUGHT PIPE**Montreal.**

Wrought iron and steel pipes continue to sell under list No. 53, with the demand continuing fair for this season of the year. With the approach of the new year, the movement is expected to show little further activity as December and January are usually the quiet months in goods of this class. Producers are operating to fair capacity, but here too a slackening in the present output is looked for in the months immediately to follow.

Price List No. 53.

Size	Standard Butt-weld Pipe S/C		Sept. 22, 1921.	
	Blk.	Galv.	Blk.	Galv.
¾ in.	\$ 6 00	\$ 8 00		
1 in.	4 20	6 30	7 20	9 30
1½ in.	4 20	6 30	7 20	9 30
2 in.	5 36	6 97	7 48	9 10
2½ in.	6 44	8 28	9 09	10 93
3 in.	9 18	11 90	12 92	15 64
3½ in.	12 42	16 10	17 48	21 16
4 in.	14 85	19 25	20 90	25 30
4½ in.	19 88	25 90	28 12	35 04
5 in.	31 59	40 95		
5½ in.	41 31	53 55		
6 in.	53 36	68 08		
6½ in.	63 22	80 66		

Standard Lap-weld Pipe S/C

Size	Per 100 feet.		Steel		Gen. Wrot. Iron	
	Blk.	Galv.	Blk.	Galv.	Blk.	Galv.
2 in.	\$23 68	\$29 60	\$31 82	\$37 74		
2½ in.	35 10	44 46	47 97	57 33		
3 in.	45 90	58 14	62 73	74 97		
3½ in.	54 23	70 84	74 52	91 08		
4 in.	64 31	83 93	88 29	107 91		
4½ in.	72 89	92 71	1 04	1 24		
5 in.	84 86	108 04	1 21	1 45		
6 in.	1 09	1 40	1 57	1 88		
7 in.	1 45	1 88	2 02	2 45		
8 in.	1 53	1 98	2 13	2 58		
9 in.	1 76	2 28	2 45	2 97		
10 in.	2 14	2 76	2 97	3 59		
10½ in.	1 98	2 56	2 75	3 33		
11 in.	2 55	3 30	3 54	4 28		

HIGHER PRICES ON BRASS**AND COPPER SCRAP****Montreal.**

Non-ferrous scrap metal, insofar as brass and copper are concerned, have new higher quotations. The continued firmer tone of copper on the metal markets has improved the tone of the scrap market on these metals in the past few weeks, and the advance in prices has been expected. Other lines remain at former figures with the market still very dull. With the closed winter weather now at hand, little improvement can be expected until the earlier months of the new year. Following are present quotations:

SCRAP—

Automobile tires	0 75
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 09
Light brass	0 03½
Scrap zinc	0 03
Lead, heavy	0 04½
Lead, tea	0 02½
Light copper	0 08
Heavy copper	0 10½
Wrought iron, R.Rd., No. 1 per gr. ton.	10 50
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	21 50

NO FURTHER CHANGE IN SOIL PIPE

Montreal.

No further change has developed in the market for soil pipe and fittings since the revision of two weeks ago. Prevailing prices remain steady on the

local market, notwithstanding these are considerably lower than in other markets. Western markets report that their distributors are hoping for an early improvement in Montreal's trade conditions, placing the responsibility for the variations in quotations on an unsettled market. Local dealers, however, maintain there is no indication of a revision in prices from the marked reduction made last month, and general market conditions in heavier iron goods would have to show a general improvement before any great change could take place. Following are local quotations:

SOIL PIPE—

2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%

BUSINESS IN RADIATORS IS QUIETER

Montreal.

With the season advancing, radiators and boilers are now moving much slower. The demand for these products has been well maintained throughout the fall months and dealers are not surprised at the present slackening as building construction is well advanced in most quarters. Prices and discounts are holding as follows:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60. Discount, 53% for hot water and 54% for steam.

Wall Radiators—5 ft., \$1.15; 6 ft., \$1.10; 7 ft., \$1.05; 9 ft., \$1.05; 12 ft., \$1.05. Discount 50%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 0 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in. to 36-in., 10 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 10 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 20 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

TIN FEATURES THE INGOT METAL MARKETS

Montreal.

The metal markets have all been firm during the past week with some showing more strength than others. The chief feature has been the advance in tin, and the sharp advance in all foreign exchanges, which has tended to give a very firm tone to the markets. Locally conditions have been rather quiet and buyers generally have not been keen on following the advance.

TIN.—The London market is very strong and has advanced over £20 from the low point. The pace has been rather rapid and a re-action would not be surprising. At the same time those in control are quite capable of pushing prices still higher. The local market is strong at 39½ cents.

COPPER.—New York seems to have reached the top on the present movement, but business remains good. London is

slightly easier owing to the advance in exchange. The market will probably be quieter until after the turn of the year. Local quotations unchanged at 18cts. for electro, 17½cts. for casting.

LEAD.—Both London and East St. Louis are steady with little change in price. Demand remains fairly good and there is no surplus of prompt lead. It is possible that the market may not hold at today's level, but there is no sign of weakness as yet. Local price 7½ cents.

SPELTER.—There is not much change in this metal, although the demand on this side is probably lighter than has been the case recently. It is expected, however, that demand will improve after the first of the year, and producers are not cutting their prices. Local market slightly lower at 7¼ cents.

ANTIMONY.—There are no new features to this metal, and business is dull with prices unchanged at 7 cents

for Chinese, 8 cents for high grade English.

ALUMINUM.—This metal continues dull on the market, with quotations also unchanged at 27 cents.

DULL SEASON FOR CORRUGATED SHEETS

Montreal.

With the season practically closed for this year sales of corrugated sheets have shown a decided slackening in recent weeks. Little increased activity is now looked for until after the turn of the year at least. Quotations are continuing unchanged since the revision of a few weeks ago as follows:

CORRUGATED SHEETS—		Per 100 sq. ft.
No. 28 gauge	.....	6 50
No. 26 gauge	.....	7 00
No. 24 gauge	.....	9 00
No. 22 gauge	.....	11 00
No. 20 gauge	.....	12 50
No. 18 gauge	.....	16 50
Less 7½%.		
Lighter than 24 gauge and wider than 27 inches,		
75c a square extra.		

TORONTO MARKETS

TORONTO, December 14.—Two advances have been recorded in solder quotations since the last market report covering steam-fitting and plumbing supplies. The higher price levels on solders appear in varying extent on the different grades. Increases are also noted on brass rods and sheets, this change reflecting the firmer tone in primary metal markets. Slight price gains are recorded on non-ferrous scrap materials, grades of copper scrap leading the upward tendency. Signs of activity in the ingot markets attract attention, with some higher prices on copper, tin, lead and spelter. Other metals remain quiet, with easier prices on aluminum.

Price declines are both numerous and important. Another reduction is recorded in malleable fittings, both black and galvanized being quoted one cent per pound lower. Quotations on enameled ware also register a decline through a revision in the discounts. Recessions appear on the J.M.T. line of screwed brass valves, also the Jenkins gate, straightway and globe valves. Coke tin plates are shown with easier price levels, the Canada and terne plates retaining previous quotations. Some lower base prices on both black and galvanized sheets are noted in certain quarters, while the iron and steel markets generally remain at moderate levels. The market in soil pipe and fittings still records a variation in discounts, no settlement having been announced. The nominal list on range boilers has succumbed to the prevalence of price shading, quotations of \$9.00 and \$8.75 on the 30-gallon standard size being almost generally recognized.

PRICE INCREASES ON BRASS RODS AND SHEETS

Toronto.

Following the higher price levels recently announced on copper products such as sheets, rods and tubing, a corresponding increase has now developed on certain brass goods. This change affects brass sheets and rods, both these lines registering quotations which are 1 cent per lb. higher than formerly. Other price levels are remaining at recent new revisions.

In discussing these latest market developments in brass and copper products with one manufacturer, Sanitary Engineer was informed that such increases reflect the trend of prices on basic products. The raw material markets have been through a period of depression,

and prices on semi-finished goods were comparatively low as a result of these conditions. However, it was pointed out that quotations are not generally expected to go up much higher, at present, because of the fact that the recent upward movement in copper has eased a little. The current increases already reflect the extent of the gains recorded in primary circles. It is noted that base tubing prices are unchanged. Following are the new quotations:

BRASS—	
Sheets, base, per lb.	\$ 0 23
Rods, base, per lb.	0 21
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 23
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

TWO ADVANCES RECORDED IN SOLDER QUOTATIONS

Toronto

Since the market on lead and zinc goods was described as very firm in the last issue of Sanitary Engineer, two distinct increases have been recorded in quotations on solders. The initial change was an advance of 2 cents per lb. on all grades, thus reflecting a considerably stronger tone and also the recent price gains which have developed on primary metals entering into the manufacture of these products. It was pointed out in a previous market report that an upward revision was expected sooner or later.

The second advance to even higher price levels shows a varying increase of one and two cents per lb., wire solder and guaranteed now recording the most marked advances. Following is the revised price list

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Cut sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 24½
Do., guaranteed, lb.	0 27½
Do., wiping, lb.	0 22½
Zinc sheets, per lb.	0 12

LOWER QUOTATIONS ON ENAMELLED WARE

Toronto.

Lower quotations are now given on enamelled ware through a revision in the discounts. This change has been looked for in these products for some time, but with the exception of a change in eastern markets which did not materialize locally and failed to hold for any length of time, quotations throughout the season generally remained unchanged.

Manufacturers are now reported to be taking advantage of some recessions in production costs and the revised discount level also indicates that higher priced stocks have now been more or less liquidated. The net prices on the all-steel enamel baths have been lowered on each side. Other list quotations are unchanged, with the easier discount available. Following are the current quotations.

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70
Sinks, Flat Rim—	1 only 2 only 3 only
16 x 24	\$7 60 \$7 70 \$7 80
18 x 30	8 50 8 60 8 70
20 x 30	9 70 9 80 9 90
Above prices list, less 33 1-3 per cent.	
All steel enamel baths, 4 and 4½ ft.	\$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75
These quotations are net.	

LOWER BASE PRICES ON GALVANIZED SHEETS

Toronto.

Prevailing quotations on both black and galvanized sheets have been reduced 25 cents per 100 lbs. in certain quarters. This decrease brings the galvanized base price from \$6.10 down to \$5.85; while the new quotation for 28 gauge black sheets is \$4.50. Other dealers are still adhering to the previous levels, and the spread in the market is indicated by the range shown on the lists quoted herewith.

The current volume of trade in sheets and plates has receded from the active levels recorded during the Fall period. The local market is now described as quiet, but fair for this time of the year. On the primary centres, the proportion of railroad buying is a factor serving to maintain a good proportion of orders for these products. Business in the steel industry generally records a nominal basis of operation, with a further improvement looked for in the Spring.

Toronto.

BLUE ANNEALED—

10 gauge, base	4 00	4 50
12 gauge	4 05	4 55
14 gauge	4 10	4 60
16 gauge	4 15	4 65

BLACK—

18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—

	Queen's	Fleur-de-lis.
28 gauge	8 25	7 75
26 gauge	8 00	7 50
24 gauge	7 60	7 10
22 gauge	7 25	6 75
18 and 20 gauge	7 10	6 60

Premier and Apollo—

10½ oz.	6 25	7 00
U. S. 28, base	5 85	6 60
U. S. 26	5 55	6 30
22 and 24	5 40	6 15
18 and 20	5 25	6 00
16	5 10	5 85
12 and 14	4 95	5 70

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

ANOTHER PRICE DECLINE ON COKE TIN PLATES

Toronto.

Further reductions of a substantial nature have been announced in prices on coke tin plates. The extent of the decline is approximately 15 per cent., applying to both IC and IX grades. Other quotations covering charcoal tin and terne plates, remain unchanged at prevailing levels. The list prices on Canada plates, however, are reported as subject to slight variation where an attractive inquiry induces easier quotations. Following are the current revisions:

PLATES, CANADA—	Per box
Dull, 60 sheets	5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	13 50
IX, 20 x 28, 112 sheets	16 50
IX, 20 x 28, 56 sheets	9 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
1XX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

PRICE RECESSIONS APPEAR ON BRASS VALVES

Toronto.

Another downward revision has been announced in quotations on certain brass valves. This change is chiefly attributed to the fact that manufacturers have decided to meet competition, while basic market conditions do not call for additional price lowering on the finished products at the present time. The trend of both copper and brass in the raw material and semi-finished stage, is of an upward nature. However, the current recessions appear on the J. M. T. line of screwed valves and also the Jenkins gate straightway and globe valves. Following are the new discount quotations:

VALVES—	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecoaks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	40
Globe, angle and check valves, std.	20
Mueller globe, angle and check	20
Mueller composition disc steam valves ..	20
J. M. T. valves, screwed	20/10
J. M. T. C., screwed	25/10
J. M. T. gate valves, screwed	25
Jenkins gate or straightway, screwed ..	25
Jenkins globe, screwed	19
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves, screwed	20
Emco, check valves, screwed	20
Webber gate valves, screwed	25
Emco, Globe valves, ¼" to 2", screwed ..	30
Emco, Globe valves, 2½" to 3", screwed ..	20
Basin cocks—	
No. 1 and 1, Fuller pattern	30
Quick opening No. 3633	43

REPORT PRICE SHADING ON RADIATOR QUOTATIONS

Toronto.

Rumors of price shading on radiators and boilers have now appeared in these markets. No great importance is attached to this reported condition at the present time, however, the nominal price lists being generally unchanged locally. In discussing the current trend of business in these products with manufacturers and distributors, Sanitary Engineer was informed that it is the intention of the producers to stand pat on prevailing prices for the balance of this year. Trade in radiators was quite brisk up until the end of November, but the last two weeks has registered a marked falling off, which is however, usual at this season. Following is the nominal list of prices and discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., \$1; 32 in., \$1.10; 30 in., \$1.15; 26 in., \$1.20; 23 in., \$1.26; 22 in., \$1.30; 20 in., \$1.36; 18 in., \$1.40; 16 in., \$1.50; 14 in., \$1.55; 13 in., \$1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 53 per cent. for water and 54 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 48 per cent. for water and 49 per cent. for steam.

Discounts on 1-column hospital size, water 30 per cent.; steam 31 per cent.

Wall radiators—5 ft. \$1.15; 6 ft. \$1.10; 7 ft. \$1.05; 9 ft. \$1.05; 12 ft. \$1.05. Discount 50 per cent.

BOILERS—

Water: Round, 60 per cent. off list. Square 10 per cent. off list.

Steam: Round, 15 per cent. off list; square, 5 per cent. off list.

ANOTHER REDUCTION IN MALLEABLE FITTINGS

Toronto.

Another minor reduction is recorded in malleable pipe fittings, this change affecting all classes in both black and galvanized. The extent of the decline is one cent on each grade, and the revised quotations are included in the lists given below.

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 8 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	33½
Do., ½ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ½ to 4 in.	50
close and short	40
Do., 4½ in. and larger	40
Do., long, ½ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

	Black	Galvanized
Class A	0 54	0 67
Class B	0 22	0 32
Class C	0 14	0 22

ONLY MINOR INQUIRIES FOR BOILER TUBES

Toronto.

Prices on boiler tubes continue to remain at unchanged levels, the current volume of inquiry not being sufficient to bring out easier quotations. For some time past it has been thought in certain quarters that lower price levels on boiler tubes would not be surprising, but distributors state that at the existing minor proportion of business activity, the prevailing quotations on these products are well representative of current market costs. A strong demand might produce some future reductions, but no marked improvement is looked for at the present season of the year. Following is the nominal list:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1¼ inch	27 25	.....
1½ inch	26 25	.....
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

SOIL PIPE MARKETS STILL SHOW VARYING PRICES

Toronto.

While the quotations on soil pipe and fittings are still unchanged on the local markets, the question as to probable future developments is naturally receiving a great deal of attention throughout the trade. One distributor expressed the opinion that if the prevailing low levels are maintained in Montreal for any length of time, such a situation was more or less bound to directly affect the Ontario markets, and future discount changes are looked for. On the other hand, the expectation prevails in some quarters that quotations in eastern centres will again be revised to the previous existing levels, as soon

(Continued on page 32)



A NEW FEATURE

A-2150 **MUELLER** Combination Lavatory Supply with Pop-up-waste is so designed that the stems of the supply valves may be refitted with seat washers or repacked without disturbing the connection between the supply valve bodies and the lavatory, a feature peculiar to **MUELLER** patterns.

Five hundred of these were installed in the new addition to the King Edward Hotel, Toronto. This is only further evidence of the up-to-dateness of **MUELLER**-designed fittings.

This design has appealed to the Architect as well as to the Plumber by reason of its utility, beauty and elegance.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products

TORONTO MARKETS

(Continued from page 30)

as the current stocks of soil pipe are disposed of at the prevailing discounts. Another viewpoint covered the possibility of these easier price levels being offered on soil pipe and fittings in order to attract other business in similar commodities. Whether such a condition would meet with much success, cannot be immediately ascertained. However, the current situation provides an extraordinary precedent in the wide range now evident between quotations given on the two chief distributing centres in Eastern Canada.

No further change has developed in the market and the general situation remains as outlined in the last issue of Sanitary Engineer. Prices remain steady on the domestic products, with the local distributors hoping for an early improvement in the Montreal trade conditions. Indications that a settlement will be made as regards the recent lower quotations, are prevalent; while business is seasonably dull in these products. Nominal unchanged discounts on soil pipe and fittings are as follows:

SOIL PIPE—	
2 inch	25 per cent.
3 inch	30 per cent.
4 inch	30 per cent.
5 and 6 inch	30 per cent.
8 inch	net
FITTINGS—	
2 to 6 inch	40-19 per cent
8 inch	Net

SLIGHT PRICE GAINS IN NON-FERROUS SCRAP

Toronto. Additional higher prices have appeared in the scrap material markets, these changes chiefly affecting heavy melting steel, and steel turnings; also non-ferrous metals such as heavy copper and wire, light copper, heavy yellow brass, and scrap zinc. There is a little more activity reported, but the degree of improvement has been very slight; the higher quotations resulting from the strength apparent in certain primary markets, together with a feeling of confidence. Dealers' average buying prices for fairly large quantities are as follows:

SCRAP MATERIALS—		
Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	\$12 00
Borings and turnings	2 50	3 50
Revolving rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	15 00	16 00
Stove plate	11 00	12 00
Grate bars	10 00	11 00
Standard car wheels	13 50	14 00
Scrap Metals.		
Heavy copper and wire	10 00	11 50
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 25	3 75
Heavy yellow brass	5 50	6 50
Heavy lead	4 00	4 50
Tea lead	2 00	2 50
Scrap zinc	4 00	4 50
Scrap Rubber.		
Boots and shoes	2 50	3 00
Lumbermen's rubber boots	2 00	2 50
Auto tires	0 50	1 00
Solid tires	0 75	1 25

ONLY MODERATE TRADE IN BOWLS AND FIXTURES

Toronto.

Current trade in closet combinations and fixtures is now at a moderate level. This condition is stated as customary for the present season of the year, when the holiday season, which is followed by the annual inventory period, are matters receiving general attention. Quotations on these products remain unchanged at the following levels:

CLOSET COMBINATIONS, low down		each
Closet, standard outfit, oak	28 00	
Do., with post hinge seat	28 75	
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 00	
Do., vitreous china, with oak post hinge seat and cover	31 55	
Do., vitreous china, with mahogany post hinge seat and cover	31 75	
Do., white Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 55	
Do., white Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 75	
Do., enamelled iron tank with oak post hinge seat and cover	31 55	
Do., enamelled iron tank with mahogany post hinge seat and cover	31 75	
Additions or reductions to above		
Add for reversible trap bowl	1 25	
Add for syphon jet bowl	7 00	
For ¾ in. valve on supply pipe	1 50	
Deduct for supply pipe	0 70	
Deduct for floor flange and bolts	0 80	

CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50

CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	20 25

CLOSET SEATS—	
Oak wood strip seat and cover	3 70
Oak post hinge seat and cover	4 75
Mahogany finish post hinge seat and cover	5 00

STILL REPORT PRICE SHADING ON RANGE BOILERS

Toronto.

Some indications of lower prices on range boilers continue to be apparent on the weekly markets. The nominal price of \$9.25 on the 3-gal. standard size, has been shaded in some quarters to \$9.00 and then \$8.75. Other reports confirmed this quotation, and although the official list remains at present unchanged, this is stated to be the recognized general nominal price list at which range boilers are now being offered. Current business in these products is described as quiet, and this condition is generally thought responsible for the desire to move stocks at the easier quotations. The following is the nominal unchanged list:

RANGE BOILERS—		Standard	Ex. Heavy
30 gallon	\$ 9 25	\$11 75	
35 gallon	12 00	14 50	
40 gallon	14 50	17 00	
52 gallon	21 00	26 00	
66 gallon	30 00	36 00	
82 gallon	37 50	50 00	
100 gallon	48 00	58 00	
120 gallon	57 00	67 00	
144 gallon		76 00	

IRON AND STEEL MARKETS AT FAIR LEVELS

Toronto.

Quotations on bar iron and steel are generally being maintained at the nominal list recently effective. A few minor instances are reported, however,

where some slightly easier prices have been given. This condition is stated as applying solely to odd sizes and exceptional circumstances, with no general tendency in this direction. The basic market quotations are also reported to be on fairly firm levels at the present time, with conditions in the industry generally reported as favorable for the current season. The structural and bar iron markets are described as waiting the impetus expected from new business in the early months of the new year. Tin plate and pipe mills supply the feature spots in current production activity. Following are the average local market prices on bar iron and steel:

IRON AND STEEL			
Mild steel bars, base	3 00	3 25	
Mild steel bands, 3-16 in. base	3 50	3 75	
Bar iron, base	3 00	3 25	
Angle iron, base	3 10	3 35	
Horseshoe iron	3 75	4 10	
Tire steel	3 50	3 75	
Spring steel	5 50	6 00	
Crucible cast sheet steel	30 00	35 00	
Mining drill steel		18 50	
Cast tool steel, medium	20 00	23 00	
Cast tool steel, high grade	30 00	36 00	
Sleigh shoe steel	3 00	3 25	
Norway iron	12 50	15 00	
Toe caulk iron	4 00	4 50	
Hoop steel	4 50	5 00	

SIGNS OF ACTIVITY IN INGOT MARKETS

Toronto.

Lead, tin and spelter, are other ingot metals which have recently developed signs of activity, in addition to copper. Antimony still remains on a moderate basis, with the demand of a very quiet nature. Aluminum quotations sagged sharply on primary markets, and are probably touching bottom. In contrast to these tendencies, an upward movement has been recorded in prices on both tin and lead, while copper quotations are also advanced another ½ cent in one quarter.

COPPER.—Although the rapid advance of copper on primary markets has recently shown slight moderation, the general firm tendency is reflected in local quotations. An increase of ½ cent is again recorded, while the price of 18 cents has also appeared. Whether the undertone will continue its present strength and even up at higher levels, is stated as dependable upon the proportion of demand at the current market basis. Local prices show a variation between 17½ and 18 cents.

TIN.—Further advances in tin prices are again recorded, this condition being apparent on both the primary and domestic markets. The strength of the general trend, and the improved position of this metal, have resulted in quotations being again advanced, this time to the extent of 2 cents. The level of 39 cents, is now generally in effect. Tin is described as having been down in the dumps for some time, and the present upward tendency is generally welcomed in metal circles, chiefly because of the reflection of a greater volume of activity.

LEAD.—The outlook for lead has al-

(Continued on page 34)

MADE
IN CANADA

MALLEABLE ^A_N^D CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron*, reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

International Malleable Iron Company, Limited
GUELPH, ONTARIO

Representatives:

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St. John N.B.—H. G. ROGERS, 147 Prince William St.

Vancouver, B.C.—CYRIL AMES, Wilton Block

Montreal and Toronto—From Head Office Guelph, Ont.

TORONTO MARKETS

(Continued from page 32)

so recently improved, and some local quotations have been slightly increased. The current demand, however, has not recorded any marked degree of improvement, but the undertone in this market is considerably firmer. The average local price has firmed up to the level of \$6.75.

SPELTER.—The market for spelter has shown some recovery from the recent depression, and as a consequence, prices are also showing a firmer tone.

WINNIPEG MARKETS

WINNIPEG, December 14.—Nominal prices on plumbing, steam-fitting and sanitary supplies generally remain unchanged, but some indication of shading certain quotations has recently appeared in some quarters. This situation chiefly applies to such materials as Canada plate and soil pipe. The incentive to reduce stocks on hand, coupled with attractive inquiries for this season of the year, is attributed as conducive to these prevailing price variations. Current business in wrought piping is of a quiet nature, while the lower price levels recently announced on both black and galvanized sheets remain in effect.

BUSINESS IN PIPING OF QUIET NATURE

Winnipeg.

No further changes have been announced in the quotations on wrought iron piping, since the revision to lower price levels recently effective. As to whether further recessions will develop in the future is stated as depending principally upon the demand. Current quotations are as follows:

WROUGHT PIPE—

	Black, Galvanized. Per 100 lbs.	
1/8 inch	6 25	8 50
1/4 inch	4 96	7 48
3/8 inch	5 10	7 63
1/2 inch	6 56	8 50
3/4 inch	7 90	10 10
1 inch	11 27	14 53
1 1/4 inch	15 25	19 67
1 1/2 inch	18 25	23 50
2 inch	24 55	31 65
2 1/2 inch	38 80	50 00
3 inch	50 80	65 45
3 1/2 inch	65 50	83 20
4 inch	77 60	98 50
4 1/2 inch	88 85	113 00
5 inch	103 60	132 00
6 inch	134 40	171 25

LOWER PRICES ON SHEETS REMAIN IN EFFECT

Winnipeg.

The recent lower price levels on black and galvanized sheets remain firm, and it is thought they will remain in effect for at least a few weeks. Following are the present quotations:

SHEETS—

	Black Galvanized. Per 100 lbs.	
10 gauge	5 70	7 00
12 gauge	5 70	7 00
14 gauge	5 80	7 05
16 gauge	5 90	7 15
18 gauge	6 30	7 40
20 gauge	6 30	7 40
22 gauge	6 35	7 05
24 gauge	6 35	7 05
26 gauge	6 40	7 20
28 gauge	6 65	7 80
10 3/4 oz.	8 20	

The local quotation has generally advanced to \$7.25.

ANTIMONY.—The current demand for antimony remains of a quiet nature, and there is little new to record in this market. Between 8 and 10 cents remains the average local quotations.

ALUMINUM.—This metal has been marked by a sharp reduction in prices on the primary centres. Some local recessions are also apparent, this change reflecting the general easier tone. The market is described as continuing extremely dull, while prices on the domestic market have receded to 27 cents.

UNSETTLED MARKET ON SOIL PIPE AND FITTINGS

Winnipeg.

Current quotations on soil pipe and fittings are reported as being shaded in some quarters. While business in these products has been fairly brisk during the early fall, the recent volume of trade has shown a marked recession, due to climatic conditions. It is inferred among certain wholesale houses that an inferior grade of soil pipe has appeared on the market, thus tempting dealers to shade quotations in order to meet this style of competition. However, the nominal list prices at present remain unchanged as follows:

SOIL PIPE & FITTINGS—

Soil Pipe.

2 and 3 inch, 20 per cent. off.
4 inch, 30 per cent. off.
5 and 6 inch, 25 per cent. off.
8 inch, 10 per cent. advance.

Fittings:

2 and 3 inch, 40 per cent. off.
4, 5 and 6 inch, 45 per cent. off.
8 inch, 10 per cent. advance.

SLIGHT VARIATION IN CANADA PLATE PRICES

Winnipeg.

Although some lower prices have been quoted for Canada plates, this is principally due to dealers endeavoring to reduce their stocks. Generally, the prices remain unchanged. Following are the prevailing levels on these products:

CANADA PLATES—

	Per box
Blued:	
18 x 24	\$ 7 25
18 x 24	7 25
20 x 28	7 25
Tin Plates:	
IC, 20 x 28	21 50
IC, 20 x 23	26 25
IX, 20 x 28	24 75
IX, 20 x 33	31 00

.AGRICULTURAL WRENCHES ON. LOWER PRICE LEVEL

Winnipeg.

Another reduction has been announced in quotations on agricultural wrenches. The new prices are as follows:
AGRICULTURAL WRENCHES—6 inch, per doz., \$5.25; 8 inch, \$6.30; 10 inch, \$7.75; 12 inch, \$9.45; 15 inch, \$12.60.

COSTS OF WARM AIR

INSTALLATION

(Continued from page 17)

162 square inches his price is \$1.42 per square inch, and at \$.667 per inch it is really worth \$108.05.

Note that the cheap A job cost at end of the first season \$26.71 the most; and will cost \$96.00 extra for many years.

I think this table shows us that the job that is planned best, following the assumption credited to the architect, is coupled with the minimum cost per square inch of actual delivery; that is to say, of actual performance.

Now allow me to follow up two of these jobs one heating season. An unlucky man bought the A house; a more fortunate man bought the C house at the same price as the first man paid.

The latter lived in a comfortably heated home using 7 tons of coal, while the unlucky owner was never really comfortable, although he burned 15 tons of coal. Our fortunate owner likes his town, he likes his house, and his Realtor; he respects his coal dealer and worships his heating plant.

Our unlucky owner regards everybody as a grafter; he hates his town, he abuses all "real estate houses." He reviles his coal dealer and curses his furnace, although it is a duplicate of the furnace in our fortunate owner's house. I indicated earlier that every error A accomplished could be duplicated in either water or steam. If our unlucky owner had a home containing a hot water plant of the same quality his troubles would be of the same nature.

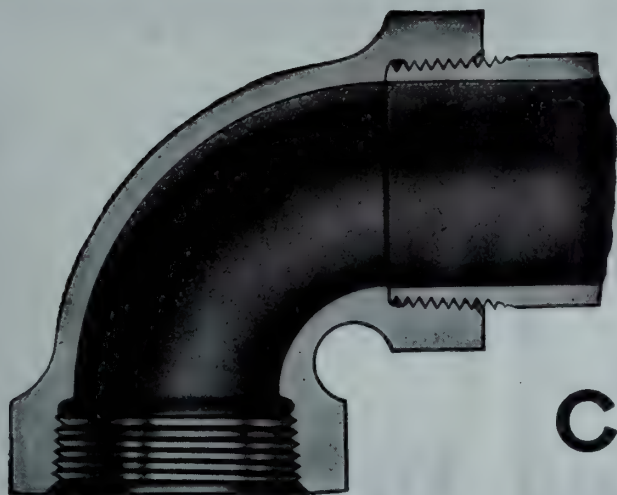
He who properly warms and humidifies a home enlarges the sphere in which correct American principles may be inculcated—in which art, music, literature and the human affections and resulting obligations may grow—in a word: Where Christian civilization may prosper.

I have added this just to be certain that our modern equipment justifies the adjective "modern" in its best sense. No home is truly an American home unless it provides comfortable conditions where the younger members love to spend much of their time. Modern equipment at minimum cost is therefore essential in modern life.

PUMP CONTRACT AWARDED

The Dominion Engineering Works, Limited, Lachine, Quebec, have secured the contract for the 3 30-million-gallon electric pumps, 12 36-inch Johnson combined stop and check valves, and 6 42-inch gate valves, required for installation in Montreal's new low level pumping station.

A. R. Wilson, plumber of Sherbrooke, P.Q., is building a new business block on Frontenac St. and will occupy one of the stores himself. There will be several apartments above the stores for residential purposes.



CRANE DRAINAGE FITTINGS

ARE MADE WITH A SHOULDER AND ARE THE SAME INSIDE DIAMETER AS WROUGHT PIPE. THE PIPE SCREWS IN UP TO THE SHOULDER MAKING A CONTINUOUS PASSAGE, LEAVING NO POCKETS IN WHICH SOLID MATTER CAN LODGE.

We recommend the use of our drainage fittings for Vacuum Cleaning installations. Fittings that are ordinarily tapped pitched for drainage work can be furnished without pitch to order.

All drainage fittings are recessed to allow easy entrance of the pipe.

*Manufacturers of Valves, Fittings and Piping
Equipment and Distributors of Pipe,
Plumbing and Heating Supplies.*

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Limited**

Head Office and Warehouse:
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Sales Offices:
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LEEDS, GLASGOW.

A
Merry Christmas
And a
Happy New Year



To the many patrons of Allpriser Service, throughout the Dominion, we extend these old-fashioned greetings of the season.

With 1922 a really Happy and Joyous New Year, we expect Allpriser Service to bring much news to you of good business and prosperity.



Kenneth B. Allison

4 Irwin Ave.
Toronto, Canada

BETWIXT or the Biggest Thing BETWEEN

By Booster Binx



Betwixt and between, if I remember what my little old red school house spelling book said, is about the same as having something on either side.

Which I have a notion is the same as saying that your boiler stands between the coal bin and the chimney. Forever and always the coal bin is trying to empty its coal into the chimney.

And the chimney is everlastingly devouringly hungry for a chance to get at the coal.

Now the shortest distance between two points is sure enough a straight line.

But when you treat coal that way, by sending it up a chimney by way of a boiler, it's like chucking money out doors.

That then, is why we made the Burnham's fire travel that makes its *short* coal bill." This is what the Big Boss said when he hired me for this job of dropping around to chat with you: He said: "Remember, Mr. Binx, that it's the Burnham's *long* fire travel that makes its *short* coal bill."

I never have forgotten it.

Hope you never will either.

Can't just tell what will be on my mind next time I see you.

Anyway, it's your turn to start something.



ROYAL BANK BLDG.
TORONTO

Lord & Burnham Co. Limited
of Canada

(Boiler Department)

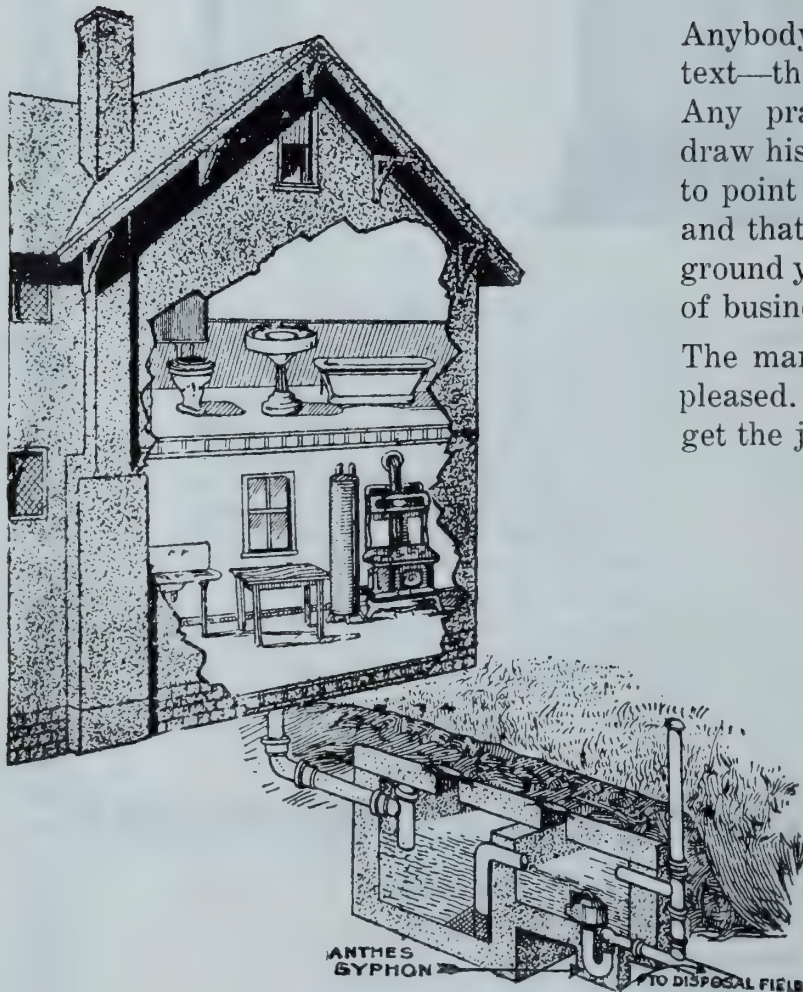
Factory:

St. Catharines, Ontario



ANTHES

“As ye sow so



Anybody could preach a sermon with that text—that's why we don't have to preach. Any practical, experienced plumber can draw his own conclusions. We don't have to point out that Anthes Syphons are good and that when you put a lot of them in the ground you are going to harvest a good crop of business that naturally follows.

The man for whom you do the work is pleased. If he needs another syphon you'll get the job. In any case, he tells his neigh-

Anthes

Toronto and

Manufacturers Cast Iron

SYPHONS

shall ye reap''

bors that Anthes Syphons made good for him—and you get that job.

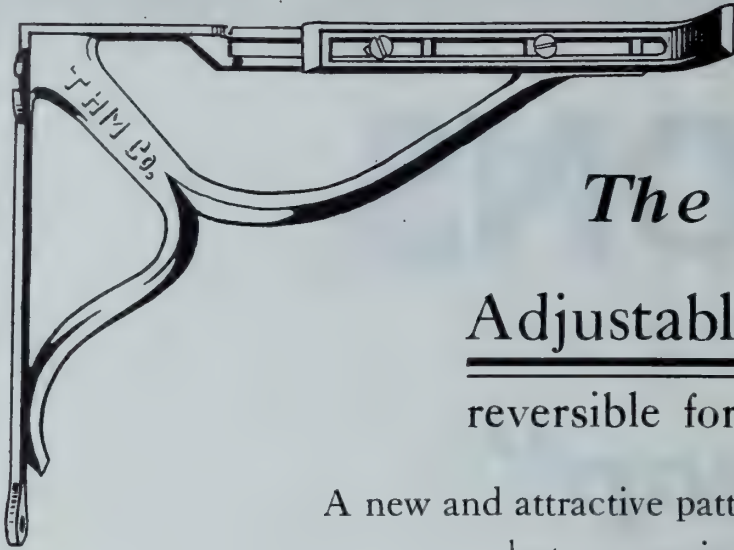
So it goes. You put down Anthes Syphons which operate according to purely natural laws, without moving parts to stick or cause trouble. They are seamless and made in one piece and their construction makes them very easy and simple to install. You benefit from the general satisfaction. We'll help with Bulletin No. 2 and supply blue prints and specifications.

Foundry
Limited

Winnipeg

Soil Pipe and Fittings





The "T. H. M. Co."

Adjustable Sink Bracket

reversible for right or left hand

A new and attractive pattern. Plenty strong enough,
but economically light in weight

Toronto Hardware Mfg. Co., Limited

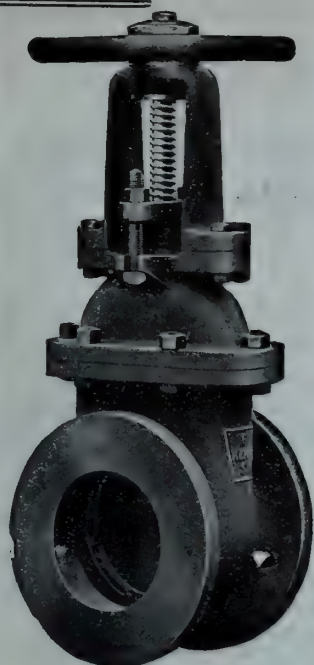
Do You Read These Advertisements?

Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery—technical paper advertising—to present most effectively to you the leading features of its line.

These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

Don't miss your opportunities. These advertisements are interesting. Some are distinctly instructive, and a glance through them every month will keep you posted on the latest developments in Sanitary Engineer.

When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER.



Kerr Valves

Give
Character
to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

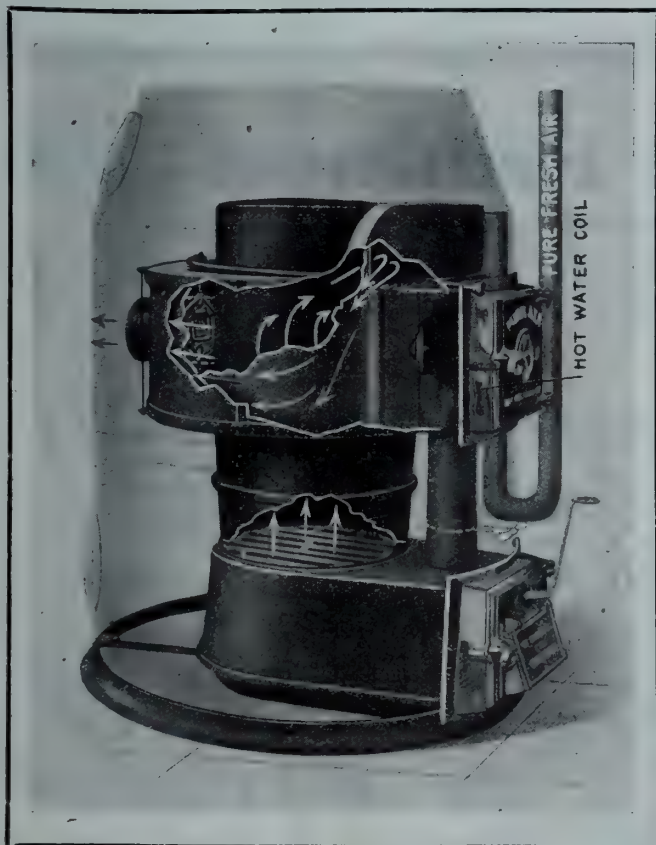


The Kerr Engine Co., Limited

Valve Manufacturers

-

Walkerville, Canada



Vulcan Pure Air Furnaces

VULCAN

The Really Modern Furnace

Heating Engineers are fully aware to-day of the menace of foul air and gas as well as the added difficulty of heating such atmospheres. Fresh air is easier to heat. The constant supply of pure fresh air makes it the most healthful form of heating, as well as most efficient.

The grate is simple, reliable and so designed that no coal can drop through. The elimination of ash-sifting is very convincing to prospective customers.

Vulcan Pure Air Furnaces are satisfactory in service, economy of fuel, comfort in the home and ease of operation. We can prove this; write and ask us to.

The VULCAN CO., Limited

Founders and Machinists

London, Canada



269 West Richmond St.,
Toronto, Dec. 15, 1921.

Mr. Sanitary Engineer:

Our aim is to supply you with specialties that stand up—give service and enable you to satisfy your customers, and at the same time save you money.— The householder doesn't "kick" about the price of a washer or a tank bulb, but he does kick if your work does not stand up. If you use "C & H" specialties you'll have, and give, satisfaction.

Look over our stock list and send us your next order; if you haven't our list a post card will secure it by return mail. We have everything in the specialty line—here is a partial list.

Cone Top Tank Bulbs
F. E. Syphon Washers
Bevelled Bibb Washers
Red Fibre Bibb Washers
Flat Fibre Bibb Washers
Leather Bibb Washers

Bibb Screws and Nuts
Fuller Balls and Repairs
Knife Blade Cutter Wheels
Ball Cock Washers and Caps
Screws of all kinds
Force Cups

Bumpers and Stoppers
N. P. Chain
Floor and Ceiling Plates
Air Vents
Tap Plugs
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Hercules Drain Pipe Solvent
Pipe Joint Cement
Pipe Hangers
Furnaces and Repairs
Ubel Semi-Rotary Pumps
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High-Grade
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for

Houses

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FOR ALL PURPOSES

Air Receivers, Boilers (Hot Water), Storage Tanks, Hot Water Tanks.

All Kinds of Steel Plate Work, Smoke Stacks, etc.

WRITE US FOR PRICES

Atlas Tank Works

Works and Office: 105 Ritchie Ave., TORONTO



Gem Automatic Air Valves

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.

The Beaton & Cadwell Mfg. Co.

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Eastern Agents:

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Quick Profits

West Furnace Carburetors and Smoke Abaters need only to be shown to be sold.

For this device actually saves 15% in fuel bills as a minimum.

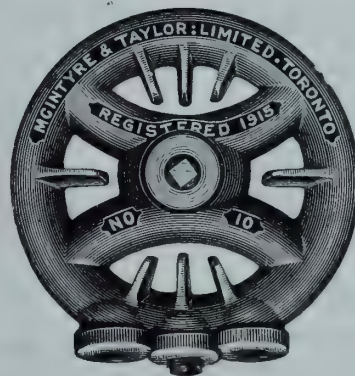
Territories are still open.
Write now—Now.

The Canadian Combustion Co., Ltd.

43 Victoria St.

Toronto

M. & T. COILS EXTENDED SURFACE



Just take a good look at the design of this Coil. It is an actual reproduction, and will heat more water for its size than any other heater on the market. If you have not yet installed M. & T. Coils, you are the loser. Send in your next order.

Ask your jobber, or write us direct. We can ship on short notice from stock.

McIntyre & Taylor Limited TORONTO

501-3 Queen Street W.

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156 Lombard Street

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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Tribmont Mfg. Co., Roxbury, Mass.
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Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
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James Morrison Brass Mfg. Co., Toronto.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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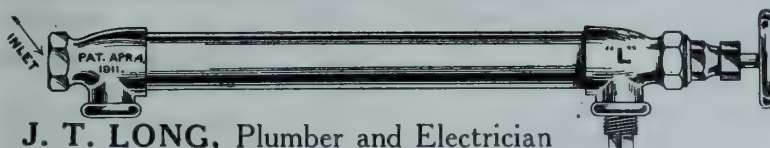
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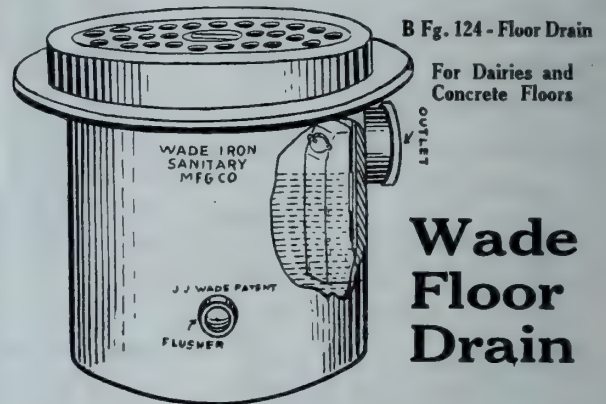
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INDEX TO ADVERTISERS

Allison, K. B.	36
Amherst Foundry Co.	Inside front cover
Atlas Tank Works	43
Anthes Foundry Co.	38-39
Beaton & Caldwell	43
Burrow, Stewart & Milne Co., Ltd.	Inside back cover
Canadian Brass Co.	1
Canadian Tube & Steel Products.	48
Canadian Combustion Co., Ltd.	43
Canadian John Wood Mfg. Co.	5
Crane, Limited	35
Cunningham & Hill, Ltd., W. H.	42
Dunham Co., Ltd., C. A.	10
Empire Brass Mfg. Co.	Outside front cover
Galt Brass Co.	Back cover
Gendron Mfg. Co., Ltd.	45
Hause Mfg. Co., Chas. F.	48
Hourd & Co.	48
Hall Zryd Foundry Co., Ltd.	2-3
Healy-Ruff Co.	48
International Malleable Iron Co.	33
Jardine & Co., A. B.	47
Katie Foundry	48
Kerr Eng. Co., Ltd.	41
Long Co., J. T.	45
Lord & Burnham Co.	37
Marks & Co.	48
McIntyre & Taylor, Ltd.	43
Morrison Brass Mfg. Co., Ltd., Jas.	7
Mueller Mfg. Co., Ltd., H.	31
Porcelain Products, Ltd.	42
Port Hope Sanitary Mfg. Co., Ltd.	24-25
St. Louis Technical Institute	46
Standard Sanitary Mfg. Co.	9
Steel Trough & Machine Co.	48
Toronto Hardware Mfg. Co.	40
Vulcan Co., Ltd.	41
Wade Iron & Sanitary Mfg. Co.	46
Warden King, Ltd.	4
Williams & Co., J. H.	46
Wolverine, Ltd.	7

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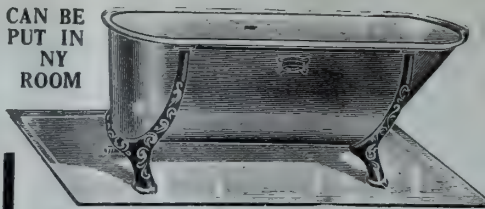


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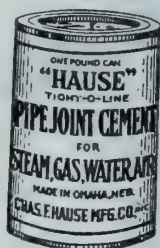
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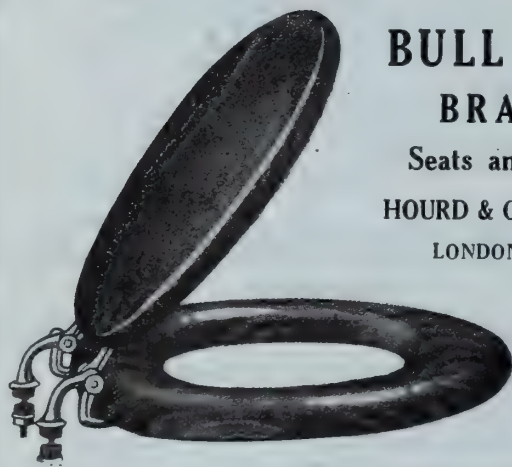
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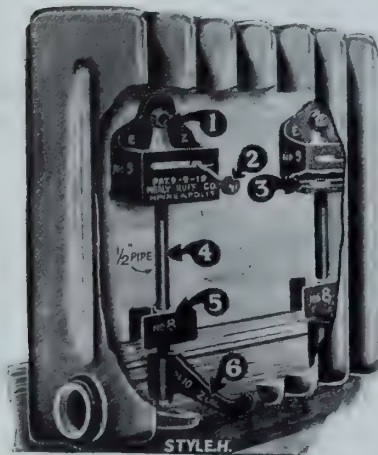
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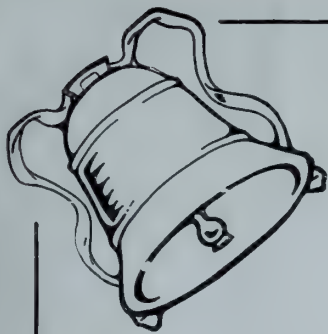
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1921— 1922

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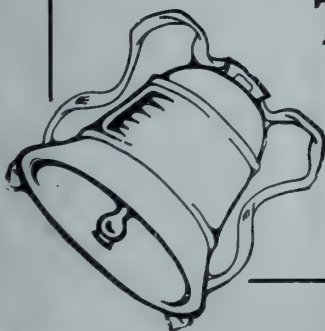
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